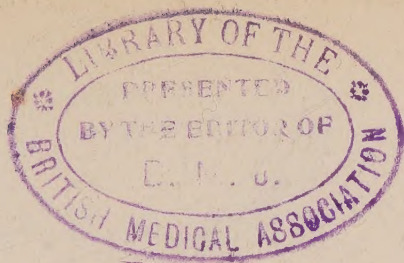


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MEDICAL NURSING

BY

A. S. WOODWARD, M.D.

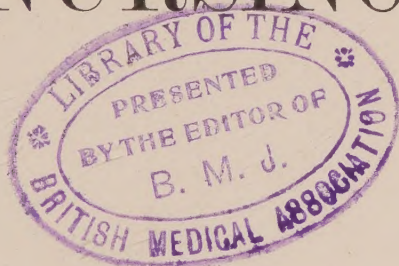
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PREFACE

A MANUAL which deals with modern nursing must necessarily consider a large number of details which would, a few years ago, have been regarded as superfluous, and quite beyond the reader's power of comprehension. But the modern system of training has elevated the nurse from her original position of an automaton to a scientifically educated co-operator, who is able to perform her duties the more efficiently because she is now able to take an intelligent interest in the meaning of the principles which underlie so much of what originally she was expected to accept without question or without reason.

It may be objected that I have exceeded the limits of what can even liberally be regarded as coming within the province of the nurse's education, and have supplied a sort of minor text-book of medicine. Such a fault, if it be a fault, is committed in the hope that this nursing manual may be of service also to the practitioner of medicine, in reminding him of the details which he will be obliged to discuss with the nurse, the warnings he will have to utter, and the orders he will be expected to give.

A good proportion of these will naturally be anticipated by the trained nurse, but emergencies are far from seldom when relations possessing no experience undertake such duties. In the latter case the most

trivial and minute instructions will be indispensable, and I hope that the method in which I have considered the various indications will serve as a convenient means of refreshing the physician's memory.

I welcome this opportunity of thanking Miss Vergette, of St. Bartholomew's Hospital, for her valuable hints on Massage; Miss Nuttall, Matron of the Dover Hospital, for her suggestions in the chapter on Cookery. I also wish to thank Dr. Agnes Savill for kindly allowing me to use the charts illustrating the Acute Specific Fevers, and Messrs. Allen & Hanbury for the illustrations of some of the instruments and utensils.

A. S. WOODWARD.

38 QUEEN ANNE STREET, W.,
1914.

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ADDENDA

Page 90, line 10, *after* '100-102° F.,' *insert* '(Fig. 36).'

Page 103, line 18, *after* 'a few days only,' *insert* '(Fig. 40).'

MEDICAL NURSING

CHAPTER I

PRELIMINARY CONSIDERATIONS

IT is essential that any woman who contemplates the profession of nursing should be thoroughly healthy and strong enough to endure the arduous work which it necessarily entails, and every aspirant would be well advised to be medically examined. Any condition such as chronic dyspepsia, flat-foot, or constant back-ache, may be absolute contra-indications, and should, in any case, receive treatment; and a nurse should always be vaccinated and have her teeth in a healthy state before beginning her career.

Although a sympathetic nature is essential, and is probably the most usual impulse among women to become nurses, this desirable quality alone is insufficient unless education supplements such accomplishments with dexterity and technical skill. In other words, the qualifications of a good nurse depend not only on a kind heart and sympathy, but also on courage, coolness in emergencies, resourcefulness and presence of mind—natural advantages which are developed by experience. Tact and powers of observation are certainly increased by a course of training at a hospital. Private nurses

will, in addition, require great unselfishness and adaptability. Instinct and intuition, which are essentially the attributes of woman, are the best guides as to the general attitude and behaviour of a nurse, whether in hospital or in private, and she will soon realise that these will need modification, according to the surroundings and type of patient with whom she is associated. The study of human nature and character is not only fascinating, but induces a breadth of mind in all women whose lives are devoted to nursing, for no narrow-minded person will be able entirely to submerge her views of righteousness in dealing with weaker vessels who are suffering through lapses from the straight path.

Quietness in all her actions is essential, and it is possible to be cheerful and bright without being boisterous; to be diligent without being noisy, and to be helpful in every sense of the word without being meddlesome and officious. There is nothing so irritating to a patient as to be constantly reminded through the fussy behaviour of the nurse, either of his helplessness or of her necessity and worth. The most successful nurse is one who, whilst manifesting the essential degree of sympathy, at the same time contrives to display that evidence of firmness and responsibility which alone can secure for her the respect of her patients, who will immediately recognise her authority and appreciate the justness of her commands.

The nurse is bound to become to a greater or smaller degree the confidant of the patient, and it is in this capacity that she must preserve the greatest discretion, and refrain from repeating anything she is told, except in the case of such information gained in this way which may be helpful to the medical man, either for

diagnosis or treatment. Above all, in her conversations she should avoid encouraging discussions which are only prompted by curiosity. She must exert all her tact to avoid gossip. The patient or friends should not be told anything concerning the illness unless the doctor has given her permission to do so ; questions are easily overcome by referring the inquirer to the doctor. In her intercourse with the patient she must endeavour to inspire confidence in the doctor. This is not merely out of loyalty to her colleague, but because the patient's own interests are in this way best served. Either from ignorance, or sometimes from absolute want of consideration or established dislike of the presence of a nurse, it occasionally happens that the latter is not well treated by relations or friends. The necessity is unfortunate, but it is certain to arise sooner or later, that she will be called upon to explain how unreasonable it is to expect her to work continuously without sleep or exercise, or to do other work than her duties, and such a task calls for much tact and indulgence. In some institutions a set of printed rules is given to each nurse, and should any extreme difficulty arise, these can be produced as an ultimate appeal. If the above advice is followed the nurse will become a friend of the household, she will be comfortable and happy, and, to consider purely the commercial aspect, she will gain a large clientèle through recommendations.

The question as to whether or not *visitors* are allowed is bound to arise, and a nurse should obtain definite orders beforehand from the doctor. When the disease is infectious no visitors are permitted, and when a patient is seriously ill or dying the nurse should not allow any visitor in the room except under the

doctor's orders, and even then she must use her own discretion in turning them out should she observe that they are worrying or upsetting the patient. It will therefore be seen that it is necessary for the nurse to be in the room or within call during the whole of the time of such visits. With convalescent patients the restrictions as to visitors are not so rigid, but here the nurse must be on her guard lest injudicious articles of diet are brought to the patient. Inquisitive, fidgety, or noisy friends should be tactfully asked to leave if it is observed that they are irritating or exciting the patient in any way.

Should a patient suddenly be taken worse, the nurse should send for the relatives. This is done preferably with the doctor's sanction, but in cases of emergency the nurse must undertake the responsibility herself.

With regard to the *doctor*, the first rule for the nurse is implicit obedience. It is not her place to reason or do things according to her own ideas or preference, but she must faithfully carry out his instructions. This, however, does not preclude her from tactfully making suggestions to the doctor, provided she chooses the right opportunity and place. It may be added, as a general principle, that she will be wise to refrain if she is in doubt whether or no to express such an opinion. Secondly, she should give no medicine without the orders of a doctor, and should therefore have his instructions beforehand in cases where an emergency is likely to arise. Thirdly, it is essential that the nurse should not discuss matters relating to the patient's condition in the latter's presence. Such information should be conveyed to the doctor outside the sick-room, and in such a manner that she should not appear to be teaching him his business whilst she

informs him of some detail which she has discovered or which he may have overlooked. It is obvious that a nurse will often be able to supply valuable information concerning the occurrence of certain signs and symptoms of which the doctor would otherwise be entirely ignorant. If the nurse is tactful in her manner, she will generally find that the doctor welcomes her co-operation, and so will tell her details which he would reserve if he thought her inquisitive or unduly officious.

In conclusion, a nurse should learn to express herself as clearly and concisely as possible. Let her be quite sure that she is prepared for all possible emergencies before the doctor leaves the house, so that she does not irritate him with unnecessary notes and telephone messages. To achieve this end, it will assist the nurse if she considers the treatment in every case under the following headings:—

(1) Habits; whether the patient must go to bed, or stay in bed; may take exercise, and, if so, of what nature.

(2) Diet.

(3) Medicine—(a) for the cause;

(b) for any particular symptoms or any emergency which is likely to arise;

(4) Local treatment; poultice, leeches, massage, &c.

and

(5) Visitors. Number permitted, and length of visit for each.

The following details as to the patient's condition, which constitutes the "Nurse's Report," should always be ready for the doctor when he visits:—

- (1) Temperature, pulse, and respiration. (These are taken four-hourly when there is fever.)
- (2) The number of times the bowels have been opened, and the quantity of urine passed. In lung cases the sputum also should be preserved. A specimen of each should be kept for the doctor's inspection on the first visit, and on every other occasion when requested.
- (3) The nature and quantity of nourishment taken.
- (4) The amount of sleep.
- (5) The occurrence of a rash noted.
- (6) Vomiting, rigors, fits, or any unusual sign.
- and (7) The amount of medicine given and the hour of administration.

CHAPTER II

GENERAL RULES FOR NURSES

THE selection of a **sick-room** may often be left to the discretion of the nurse, a choice which will call for some judgment and discrimination. The characteristics of an ideal room in which to nurse a patient are fairly easily defined. The room should be airy and well lighted, with, preferably, a southern aspect. It should be conveniently large, with windows which permit of easy and efficient ventilation, and a fireplace which is in perfect working order.

The room should be situated on the quiet side of the house. It is quite evident that in the majority of cases all of these conditions cannot be satisfied, and one is frequently called upon to make a choice, which is in the nature of a compromise, and to balance the relative advantage of sunlight on the one hand, and quietness on the other.

Other details of the sick-room are more within the control of the nurse in charge. Brightness and cheerfulness are often obtainable by the introduction of a few simple articles and the elimination of others already present. Flowers are almost an essential factor in the equipment, and only rarely need care be exercised to exclude those of excessive or overpowering perfume. Flowers should be removed each evening for the night. A large quantity of furniture is not only unnecessary

but undesirable, as militating against perfect cleanliness, a feature which will be better appreciated in the chapter on Acute Specific Fevers. When the illness in question is one of the Acute Specific Fevers, carpets and curtains must be rigidly excluded as retainers of infection. On the other hand, however desirable it may be to remove a carpet or a mat for such a purpose, this advantage is largely counterbalanced by the irritation caused to the patient by the noise of footsteps upon the boards, or, although to a less extent, upon linoleum.

The bed should be of the plainest pattern, and for several reasons single beds are to be preferred. A good firm mattress should always be used, and feather beds are in any case to be condemned as becoming exceedingly uncomfortable after any length of time. If the illness is of such a nature that the patient can be moved with impunity, the employment of two single beds ("twin beds," for example), one for day, and the other for night use, will add enormously to the patient's comfort. The single bed, again, can be easily and quickly moved to any position, and, furthermore, it enables the nurse to give attention from either side.

In choosing a position for the invalid's bed, the chief care to be exercised is that the light from the window does not strike into his eyes. If such a position incurs the risk of draughts, it is usually quite easy to obviate them by an arrangement of screens.

No care is, of course, too great to ensure the patient's complete comfort in bed, and the avoidance of creases in the sheets is not the trivial detail that it might appear.

Changing the Bedclothes. — On those occasions when the bedclothes must be changed without the

patient leaving the bed, during which process he must not be uncovered, the following is the plan usually adopted. All the upper bedclothes are removed, with the exception of the sheet and one blanket. (It is hardly necessary to note that all the soiled linen should be taken out of the patient's room as soon as it is removed from the bed, and all clean linen well aired before being utilised.)

The next stage is the removal of the under-sheet. The pillow should be moved to one side of the bed and the patient rolled on to his side, so that one-half of the bed is left free. The under-sheet is then rolled up to his back. A clean sheet, which is to become the

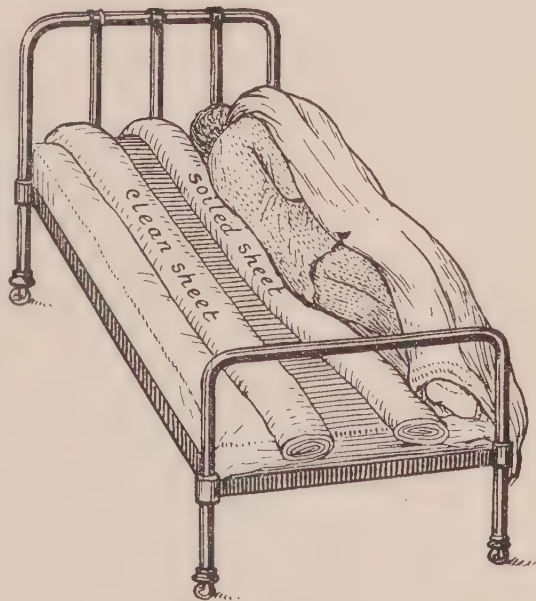


FIG. 1.

new under-sheet, is then half rolled lengthwise, and placed with its rolled half against the soiled sheet; the part of the sheet which is unrolled is then stretched over the bed and tucked in.

The patient is now rolled back on to the clean sheet, the dirty sheet is removed, and the rolled-up half of the clean sheet is stretched over the remainder of the bed.

The upper bedclothes can now be placed on the bed. It has already been noted that a sheet and a blanket were left in position: over these a clean sheet is placed, and the underlying sheet and blanket can now be

drawn away without removing the clean upper sheet. The rest of the bedclothes are then added in the ordinary way.

The draw-sheet is a convenience which is usually employed when the bed is being frequently soiled. It is made by folding a sheet lengthwise, so that its width will extend from the middle of the patient's back to his knees, the ends being then tucked in on both sides of the

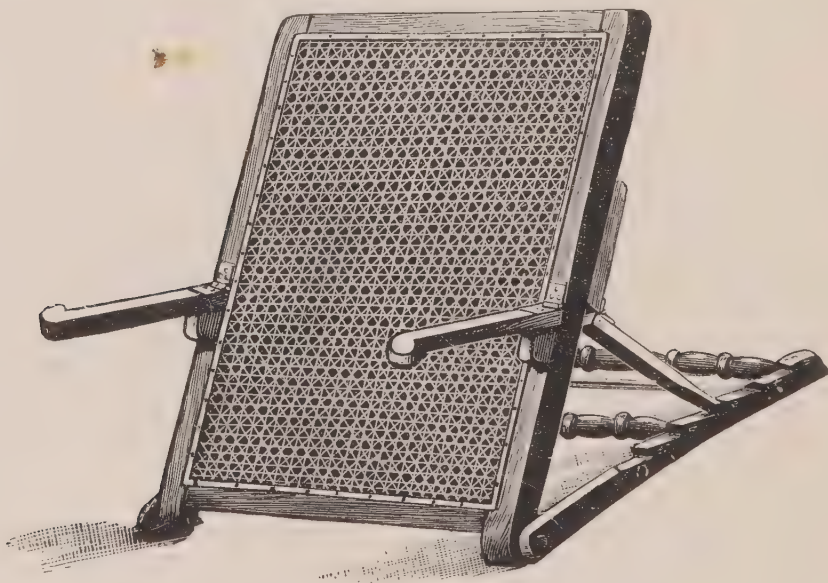


FIG. 2.

mattress. It can then be moved from side to side, to enable the soiled part of it to be pulled from under the patient and pinned up at the edge of the bed. When the patient is able to move, he assists this procedure by rolling over to the opposite side; if it is impossible for him to move himself, the nurse should gently raise him whilst a second person pulls the sheet the requisite distance. In such cases it is well to place a mackintosh between the under blanket and under sheet to protect the clothes and mattress.

Constant attention to the pillows will add greatly to the patient's comfort; at frequent intervals they should be removed and shaken up and the pillow cases smoothed out. In certain cases from necessity, in others from choice, the semi-recumbent position is found the most comfortable. This position is most easily achieved by the inclusion of a **bed rest** (Fig. 2) with plenty of pillows in front; if a bed rest is not obtainable a chair is a suitable substitute placed with its back on the bed so that the seat covered with pillows forms the rest for the back. As in the semi-recumbent position the patient tends to slip down the bed, a long bolster pillow with tapes sewn at both ends should be placed beneath his knees and the tapes tied to the head of the bed.

A water-bed or an air-bed is often an urgent necessity. Its indications are any condition in which bed



FIG. 3.

sores are likely to arise, such as affections (injury or disease) of the nervous system and any prolonged illness in old patients.

The water-bed should first be placed upon the mattress and then three-quarters filled with water at about 90° Fahr. and completely distended with air.

Over it is placed a thin blanket, a mackintosh, an ordinary sheet, and a draw-sheet. When once filled and in position the water-bed must on no account be moved when the patient is lying on it as it may very easily be ruptured.

When a water-bed is prohibited by its cost, an air cushion may to some extent serve instead.

Tent-bed.—In certain diseases of the respiratory system it is necessary for the air to be made as moist

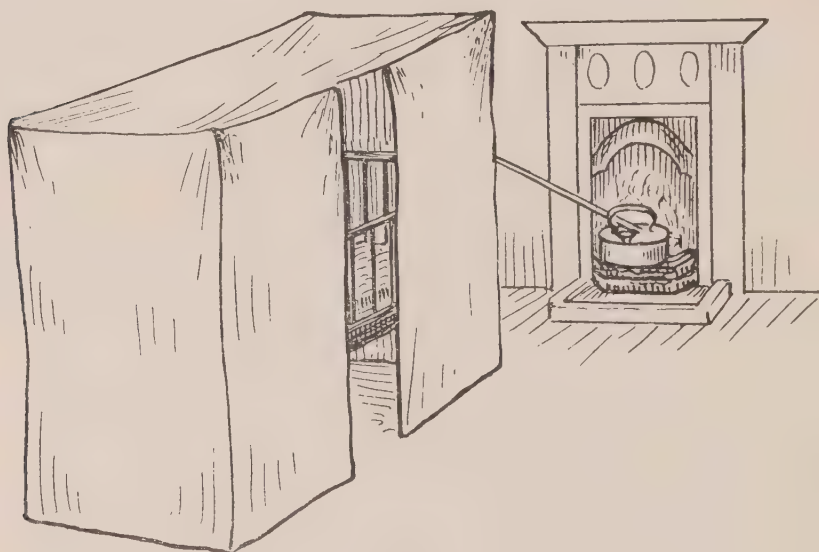


FIG. 4.

as possible. This is achieved by means of a tent-bed, which is erected in the following manner: Screens or clotheshorses are placed at the head and foot of the bed or cot, and over these sheets are arranged and pinned so as to surround the bed almost completely, an opening being left through which the patient may be observed and air can be admitted. A steam kettle is placed upon the fire and so arranged that the spout projects into the tent. The temperature of the moist air within should be kept at from 60° to 70° Fahr.

Temperature of the Room.—As a general rule the temperature of the sick-room should be between 60° and 65° Fahr., but on occasions a higher temperature may be desired. A thermometer should be hung on the wall near the bed in such a position that it is exposed neither to the direct rays of the sun nor to draughts, and frequent observation should be made to see that an equable temperature is being maintained so that the necessary steps may be taken to make the room hotter or colder as required. It is particularly important to see that the room is warm before the patient dresses or undresses.

The temperature of a cold room is of course raised by a fire. A gas stove should be avoided whenever possible; its use leads to excessive dryness of the atmosphere and effective ventilation is not maintained, as in the case of an open fire, which causes a draught through the chimney shaft. In those cases when a gas stove cannot be avoided, a bowl of water should be placed in close proximity; its evaporation to a certain extent preserves the moisture of the air. When the room is too warm, the temperature may generally be lowered sufficiently by drawing down the blinds, although on extremely hot days it may be necessary to place blocks of ice in the room covered with pieces of cloth.

Ventilation.—However desirable an equable temperature may be, this must not be obtained at the expense of ventilation. Pure fresh air is of vital importance in the sick-room, and to admit this in sufficient quantity and yet at the same time avoid a draught, may be a problem of no little difficulty. Air should be admitted through the window rather

than the door, as being invariably fresher; if there are several windows, one situated away from the wind should be opened in preference to one facing the wind, and less draught is caused if it is opened at the top.

In stormy weather it is unwise to keep the window open continuously; the room may then be aired by opening a window and the door for a short time whilst the patient is well covered up.

The windows must always be closed whenever the patient is at all exposed, *e.g.* when he is being examined by the doctor or washed. They may be opened immediately afterwards.

Cleaning the Room.—A periodic complete cleansing of the room often presents considerable practical difficulties. Its necessity should not really appear if the floor is well swept and the room thoroughly dusted with a damp duster, every day. When carpet sweepers are not available, damp tea leaves should previously be strewn over the carpet to prevent the dust rising during the sweeping. Vacuum cleaners are coming gradually into common use and are most efficacious.

When in cases of long chronic illness it is occasionally desirable to wash and scrub the floor, the patient must first be removed to another room and not allowed to return again until it is thoroughly dry.

Attendance on the Patient.—It is unnecessary to consider any details of the nurse's dress and personal cleanliness in her attendance on a patient. One item is at least worthy of mention. Few things can be more irritating to a sensitive invalid than the constant passage of anybody with creaking or noisy shoes, an annoyance which can be avoided by the exercise of

a very little care in selecting comfortable but well-fitting boots or shoes, preferably with rubber heels.

Nor is it necessary to recommend noiselessness in other respects. A trifling consideration may make a very great difference to the comfort of a restless patient. Carelessness in making up a fire will, for example, lead to needless noise. It is a good plan to wrap up each lump of coal in a piece of newspaper, or to use an old glove for placing the lumps on the fire, and a stick makes far less noise than a metal poker when the fire has to be poked.

It may, in fact, be said, that whereas a nurse may apparently receive no credit from a patient because she has conducted all her duties unobtrusively and without noise, the slightest error in this direction is bound to be resented. It is no small compliment, therefore, to have done nothing with which fault can be found.

Washing the Patient.—The hands and face must be washed at least twice a day, morning and evening, and if the patient is not strong enough to do this for himself, these duties must be performed by the nurse. It is generally advisable to perform this operation in a fixed order in the following manner:—The window and door being closed, first spread a towel over the pillow beneath the patient's head, and sponge the face with plain water. The ears and neck are then carefully washed over with soap and water and dried. The arms are next cleansed. The towel is placed underneath the bared limb, which, when finished, is at once covered over by the blanket again. The nails are attended to, if necessary, at the same time. To wash the front of the chest and the abdomen, the body is bared from the neck to the thighs, and a towel is tucked in on either

side, the remainder of the body being kept covered over by the blankets, in order to keep him as warm as possible. After washing and drying him he is rolled over on to his side, the towel is tucked between the bed, and his trunk and his back is washed and dried.

The legs are then washed in a similar manner, being uncovered to the groin one at a time. Other details of the toilet are at the same time conveniently completed, the teeth are cleaned, and the hair is brushed. The question of cutting the patient's hair can be left to the doctor.

If the patient is able to take a bath, the water must be prepared by the nurse, who will see that the temperature is properly regulated, using a **bath thermometer** (Fig. 5) for this purpose.

Instructions will usually be given by the physician, but in the absence of any more specific details than to give a warm or hot bath, &c., it must be remembered that the temperature of a **cold** bath is 70° Fahr. and lower; of a **tepid** bath, 90° to 100°; of a **hot bath**, 100° to 106°.



FIG. 5.

Children must, of course, never be left alone in a bath, and in the case of adults recovering from illness and taking a bath for the first time, it is imperative that the nurse should be very close at hand and on the alert, lest any untoward symptom should develop, since, to a person debilitated by illness, taking a bath is a fairly considerable effort, and faintness may very easily occur.

When it is impossible for an ordinary bath to be taken, the whole body must be sponged over with soap

and hot water every two or three days, or every day when the patient's condition permits, in the manner described above.

Under this heading must be considered the care of the back and hips of patients who are liable to get **bed sores**. These result from pressure or irritation in very heavy or emaciated people, in patients suffering from nervous diseases, or in people who have been in bed for a long time without proper attention. Where the possibility of bed sores is present, the back and hips should be washed well with soap and water, and after careful drying, sponged or rubbed with methylated spirit, eau-de-Cologne, or brandy, which will harden the skin. Finally, the whole area is powdered with zinc and starch powder. In patients with incontinence of urine and fæces, some simple ointment, such as boracic, should be well rubbed in to protect the back from the irritation of the discharges, but it must be remembered that this will soften the skin, and so should only be performed when absolutely necessary.

Lifting the Patient.—This is, of course, a very fre-

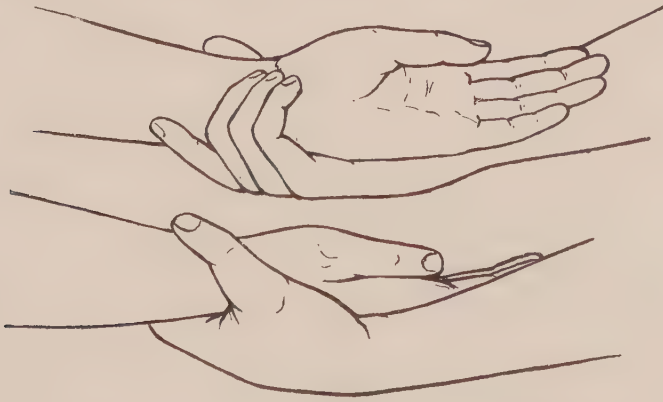


FIG. 6.

quent task for a nurse, and is required in all cases when the patient's position needs changing or a bed-pan is

given. It may be performed by one person if the patient is a child, but in the case of an adult, and particularly a heavy adult, it is far too great an effort for one person to undertake, and nurses have frequently injured themselves by such attempts. To raise an adult patient, two people should stand on opposite sides of the bed and join hands beneath the patient, placing them so that one pair of arms lies beneath the



FIG. 7.

patient's waist and the other beneath his thighs, whilst the patient presses his chin on his chest. In some cases it is highly desirable that a third person should look after the patient's head.

Feeding the Patient.—It is the nurse's duty first to ensure that the patient should be propped in a comfortable position for his meals; next, that the food should be served as appetisingly as possible. As regards the first of these duties, she should see that the patient is propped up with pillows, and at the same time well

protected from draughts with a wrap round the shoulders. In most cases meals will be served on a tray, but a **bed table** (Fig. 8) is a far more convenient method of serving. There are several varieties of tables in use; the one figured is simple and cheap, yet efficient.

Punctuality is of prime importance, and no matter what difficulties may be present in the way of serving the food, it must be so contrived as to be brought to the table as hot as possible.

When the meal is finished, the remains should immediately be removed from the room, and any

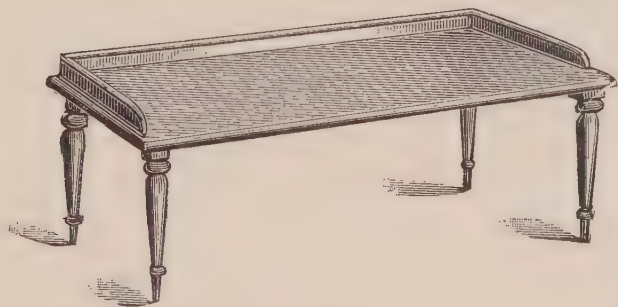


FIG. 8.

crumbs swept from the bed. In some cases the patient will have to be fed by means of a spoon or **feeding-cup** (Figs. 9 and 10), which will, of course, be handled by the nurse, who will at the same time support the patient's head by passing her left hand behind the pillow and gently raising the head and pillow together. The objection to the old-fashioned feeding-cup was the difficulty of keeping it clean. The more modern "ideal" feeding-cup (Fig. 9) is to be recommended. Only on those occasions when she has been definitely ordered to do so, should a nurse wake a patient to administer food.

It would be out of place in this book to deal at any

length with the nature and quantity of food taken in various conditions. These are details which are specific to each case, they will be definitely ordered by the physician in charge, and in no circumstances should a nurse take the responsibility of administering anything which has not been ordered. If the amount of fluid which has been allowed is insufficient to quench the thirst, temporary relief may often be obtained by moistening the lips with a little lemon juice. A nursing chart (which is quite independent of the

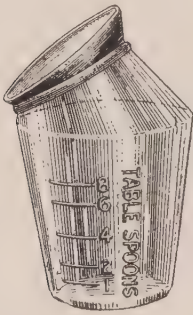


FIG. 9.

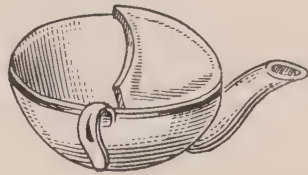


FIG. 10.

ordinary temperature chart) should always be kept, in which details of the amount of food taken are at once recorded.

Care of the Bowels and Bladder.—In patients confined to bed, the use of bed-pans and urine bottles is of course necessary. **Bed-pans** are made of earthenware, and are of two shapes—round for males, and “the slipper” for females (Figs. 11 and 12). It will often add to the patient’s comfort if the chill from the earthenware is obviated by placing round the edge a piece of flannel, which must be kept scrupulously clean.

The round bed-pan is usually passed from the side under the patient, who raises himself, or is lifted upon

it. After the bowels have been opened, the pan should be immediately covered and taken from the room to the lavatory. If the motion is to be kept for examination, a towel wrung out in some disinfectant should be placed over it. Special disinfection of the excreta is essential in the case of patients suffering from contagious diseases, details of which will be found in Chapter VI.

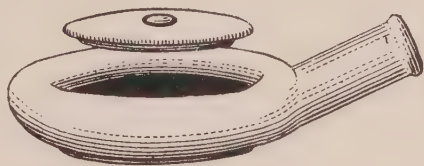


FIG. 11.

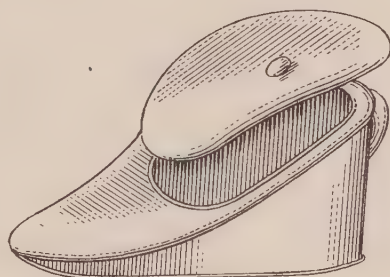


FIG. 12.

Urine bottles are made of glass or earthenware, and of slightly different shape for male and female patients, as shown in Figs. 13 and 14.

It is not out of place at this stage to say a few words upon the keeping of the stools and urine for examination. It is almost unnecessary to issue a warning that



FIG. 13.

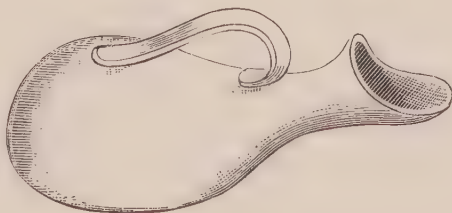


FIG. 14.

it is quite unpardonable for a nurse to throw away a specimen which she has been categorically asked to keep; she will forfeit the confidence of the doctor in

charge, a confidence she can never hope to regain. As regards the specimens about which she has to use her discretion, it is by far the best for her to err on the side of over-zealousness. No doctor will resent being asked if he wishes to see such a specimen; on the contrary, he will generally approve of the precaution, and it may often happen that the development of some new feature in a case renders it very desirable that some detail which has hitherto been regarded as beside the point, should now be submitted for investigation. Such specimens can always be thrown away after the doctor has gone, if they are not required, and the only trouble involved is the simple act of keeping them on one side, and of asking whether they are wanted.

Any vomit should always be kept; it is almost certain that the doctor will wish to examine it. Sputum should also be saved (see Chapter V).

Temperature of the Patient.—The temperature must be taken night and morning regularly at the same hour, generally between 8 and 10 A.M. and 5 to 7 P.M.; when fever is present it should be taken four-hourly. The normal temperature of a healthy person is regarded as 98.4° Fahr., a figure which is

generally indicated on the **clinical thermometer** by an arrow (see Fig. 15). Before using the thermometer, the top of the column of mercury must be below this figure. If it is not below this point the mercury must be shaken down

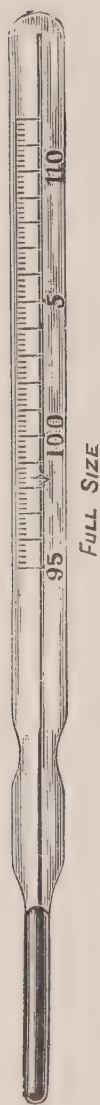


FIG. 15.

by holding the stem of the thermometer firmly and jerking the bulb with a smart downward movement of the wrist. When this operation is at first performed the thermometer is not infrequently dashed on the floor through not being held firmly enough in the hand, and special contrivances are to be obtained in which to place the thermometer to jerk it with greater safety. Such contrivances are not in popular use, nor need they be regarded as necessary, if reasonable care is taken that the stem of the thermometer is firmly held and there is plenty of room to swing the arm without striking the thermometer against some object in the neighbourhood.

The thermometer is usually placed under the armpit, the only precautions taken being that there is contact all round with the bare skin, and that all perspiration has been previously carefully wiped away; the arm should then be placed close to the side and the hand brought across the chest. The other common situation is the mouth. The thermometer is placed under the tongue and the patient is told to close his lips but not his teeth upon it. The inexperienced patient will possibly break the thermometer with his teeth if he is not previously warned.

The length of time for which the thermometer must be left in position varies with the delicacy of the instrument, according to which it is known as a 30-second, 1-minute, 3-minute, or 5-minute thermometer. Some thermometers have these times marked upon them so that the nurse can tell how long they must be left in position. When this is not the case it is usual to leave it for five minutes. After use, the thermometer should be cleansed in **cold** water (hot water will expand the mercury and burst the instrument), and

then left until it is next required in a glass vessel containing 1 in 20 carbolic acid with cotton-wool at the bottom, to save the instrument from breaking when it is placed therein. The antiseptic is rinsed off with cold water before using the thermometer.

In young children it is often more convenient to take the temperature in the groin with the thigh flexed upon the abdomen. Occasionally the nurse will be asked to take the temperature in the rectum, in which case the bulb is previously greased and is then passed for about an inch through the anus. The rectal temperature is generally 1° or 2° higher than that in the axilla.

FEVER

When the temperature is raised above 98.4° Fahr., fever or **Pyrexia** is said to be present. In addition to the high temperature the following signs and symptoms are also indicative of fever, and occur no matter to what cause the fever is due.

The patient feels hot, the face is flushed, and the skin is dry and hot to the touch. The mouth is parched, the tongue is furred, and great thirst is complained of. The appetite is poor and constipation is marked. The urine is scanty and very high coloured; the pulse and respirations become more rapid. Headache is present, and in bad cases delirium may also be observed.

When the temperature reaches 105° then the condition is called **Hyper-pyrexia**. A temperature below 98.4° is said to be subnormal. According to the manner in which the temperature varies the following conditions are recognised:—

Hectic Fever.—In this the temperature rises and falls (to normal or lower) in an irregular manner, and

is accompanied by rigors and sweats. This is sometimes called **Intermittent Fever**.

Remittent Fever.—The temperature is always above normal, but shows fluctuations of more than $1\frac{1}{2}^{\circ}$.

Continuous Fever.—In this condition the temperature always keeps above 98.4° .

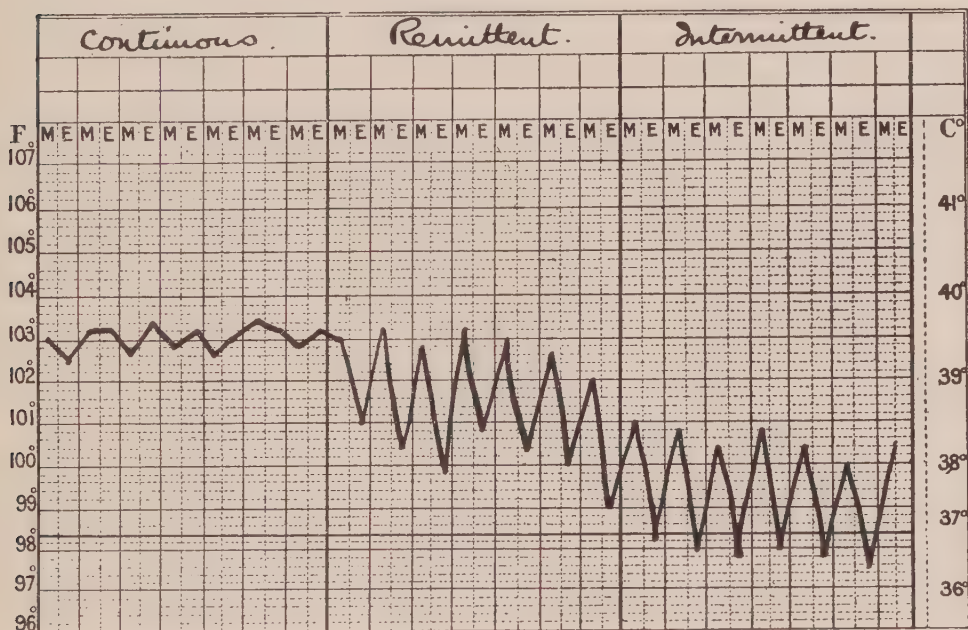


FIG. 16.

Crisis.—When the temperature at the end of a fever suddenly falls to normal, or below normal, it is said to do so by crisis. It occurs in such conditions as Lobar Pneumonia, Malaria, Influenza, Erysipelas, &c. This may mean that the termination of the disease will be favourable, but should the crisis be followed by collapse, death may ensue. In the case of collapse the doctor must be sent for at once.

Lysis.—This is the gradual decline of the temperature in fever to normal. Examples of this are found

in Typhoid, Broncho-Pneumonia, Smallpox and Scarlet Fever.

The treatment of fever (high temperature) or collapse (low temperature) is considered in Chapter VI.

The pulse-rate should always be taken and charted at the same time as the temperature. The fingers are placed upon the wrist, as shown in Fig. 17, where the radial artery can be felt beating. The rate per minute is the criterion always adopted, but it is not necessary to count the beats for a full minute. It is a common practice to count the beats occurring in 15 seconds or 20 seconds



FIG. 17.

(a watch with a seconds hand is of course necessary), and multiply by four or three respectively.

The pulse-rate varies enormously in different conditions. It is much more rapid in younger persons. The average pulse-rate of the normal healthy adult resting is taken as 72, but large variations on both sides of this are quite compatible with perfect health. In a newly-born child it may average 140, dropping to about 100 beats per minute when it reaches the age of 5 or 6.

It is not only important to note the rate of the pulse, but also whether a beat is occasionally missed, when the pulse is said to be **intermittent**. An **irregular** pulse is one in which the beats do not follow one another at regular intervals, being sometimes rapid and sometimes slow. An extremely rapid pulse is called a **thready** or running pulse.

Respirations are counted at the same time as the

temperature by watching the number of times the chest expands during one minute. In adults this is generally about 16 times a minute, but in healthy children under 7 years of age it may be as many as 24 to 30.

Sleep.—The exact hours during which the patient was asleep must be recorded.

Any unusual symptoms, such as fits, rigors, vomiting, complaint of pain, faintness, &c., should be noted, with any observations that can be made at the time.

The whole of the details which have been considered will comprise the **Nurse's report**, to be presented to the doctor at each visit.

CHAPTER III

THE ADMINISTRATION AND ACTION OF MEDICINES—POISONING AND ITS TREATMENT

Administration of Medicine.—The directions which are given upon the label, or in any other way, should always be carried out with the greatest care. Punctuality must be rigidly observed if definite hours are stated for the administration of a dose, and careful

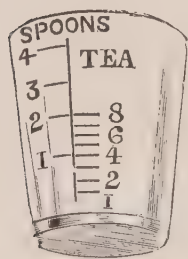


FIG. 18.

routine reading of the details on the label will prevent such inexcusable mistakes as giving the medicine before instead of after meals, or omitting to shake the bottle. It may be stated here that the consequences which may follow a mistake of this kind may be of extreme seriousness. Slipshod methods in guessing the amount of a dose are, of course, unpardonable, and accuracy

is only possible when the medicine is poured out into a **graduated glass**. However correct the graduation marks on the medicine bottle, such a means of obtaining the dose is clumsy and unscientific, and ought never to be employed. A patient should never be awakened merely in order that a dose of medicine is to be given, unless the nurse has received specific orders to this effect.

Lotions and liniments (which should always be in distinct, coloured bottles) should in any case be kept apart from the medicines for internal administration.

In these days of patent medicines and self-prescription, it will frequently happen that the nurse will be called upon to exercise a little firmness and tact in dissuading her patient from using various domestic proprietary medicines in the treatment of symptoms which may from time to time occur in the course of the illness. It may be taken as a general rule, with trivial exceptions, that she will be wise to refuse to give any drug without the doctor's permission. Neglect of this rule may not lead to any serious disaster, but it is sure sooner or later to lead to disturbance of the confidence which should always exist between physician and nurse.

It is quite unnecessary for the nurse to know the doses of a large number of drugs. It is desirable, however, that she should be acquainted with the commoner ones; for, although to a great extent she is bound to follow blindly any instructions given her, her knowledge that a grievous obvious blunder has been inadvertently made may be the means of preventing a tragedy. It is desirable, too, that she should be acquainted with the action of certain drugs, and also with the abbreviations used by the physician in ordering them, although in most cases the directions she will find upon the label will be expressed fully in English.

The following will serve as an example of an ordinary prescription:—

R.

Sodii Bicarb. gr. x.

Ess. Ol. Menth. Pip. ℥ ss.

Spirit Chloroformi ℥ x.

Infus. Gent. Co. ℥ ii.

Infus. Rhei. ad. ℥ i.

Sig. ℥ i t.d.s. p.c.

A. S. W.

Mrs. BROWN,
Oct. 1, 1914.

The interpretation of a prescription will be seen to resolve itself into four headings:—

1. *The Symbols of Weights and Measures:—*

Gr. = grain. The number following indicates the number of grains—*e.g.* gr. iii. means three grains.

℥ i = 1 scruple or 20 grains (this symbol is very rarely used in prescriptions).

℥ i = 1 drachm or 60 grains.

℥ i = 1 ounce or 8 drachms.

℥ i = 1 minim or 1 drop.

1 fluid drachm = 1 teaspoonful.

2 „ drachms = 1 dessertspoonful.

4 „ „ = 1 tablespoonful.

1 „ ounce = 2 tablespoonfuls.

O j = 1 fluid pint (20 ounces).

When half of any one of these measures is ordered it is usual to write ss—*e.g.* ℥ss = $\frac{1}{2}$ drachm.

The medicine should always be measured into a graduated medicine glass which bears these symbols on the outside, but in an emergency a spoon may be used instead, although it must be remembered that spoons vary in size, and the volume of their contents is only approximately that given above.

2. *Abbreviations of some of the more Common Preparations as written by the Doctor:—*

Ac. = Acid.

Aq. (Aqua) = Water.

Cach. = Cachet.

Dil. = Dilute.

Ext. = Extract.

Fot. = fomentation.

Garg. (Gargarisma) = Gargle.

Haust. (Haustus) = Draught.

Hyp. = Hypodermic.

Inject. = Injection.

Lin. = Liniment.

Liq. (Liquor) = Solution.

Lot. = Lotion.

Mist. (Mistura) = Mixture.

Ol. (Oleum) = Oil.

Pig. = Pigment, or Paint.

Pil. = Pill.	Tinct. or Tr. = Tincture.
Pulv. (Pulvis) = Powder.	Troch. (Trochiscus) = Lozenge.
Supp. = Suppository.	Ung. (Unguentum) = Ointment.

3. At the end of the prescription, and just prior to the doctor's initials, will often be found letters which are abbreviations of directions. The following will serve as examples :—

aa	= ana	= of each.
A.C.	= ante cibum	= before food.
ad.		= up to.
Ad lib.	= ad libitum	= to the amount desired.
Bis.		= twice a day.
B.P.		= British Pharmacopœia.
Ĉ.	= cum	= with.
Ex. aq.		= in water.
ft.	= fiat	= let it be made.
M.	= mane	= in the morning.
N.	= nocte	= at night.
O.M.	= omni mane	= every morning.
O.N.	= omni nocte	= every night.
P.C.	= post cibum	= after food.
P.R.N.	= pro re nata	= when necessary.
Q.H.	= quartis horis	= every four hours.
Q.S.	= quantum sufficit	= as much as necessary.
Rep.		= repeat.
S.O.S.	= si opus sit	= when necessary.
Stat.	= statim	= immediately.
T.D.S.	= Ter die sumendus	= to be taken 3 times a day.

The Pharmacopœia is a book containing the directions for the preparation of medicines. It is published by some constituted authority, and these preparations are therefore known as official. Each country has its own, and in England it is known as the *British Pharmacopœia* (B.P.).

4. *The Action of Drugs.*

Before considering the action of drugs, it will per-

haps assist the nurse if a few definitions are given of names which are used in classifying drugs according to their effects:—

Anæsthetics	= drugs which produce insensibility to external impressions. They are called general anæsthetics when the whole body is affected, and local when only a part is rendered insensible, whilst the consciousness remains unimpaired.
Anodynes	= drugs which relieve pain.
Antidotes	= drugs which counteract the action of poisons.
Antipyretics	= drugs which lower the temperature.
Antiseptics	= drugs which prevent or destroy the growth of micro-organisms.
Antispasmodics	= drugs which prevent or relieve the occurrence of spasms which occur in asthma and similar diseases.
Aphrodisiacs	= drugs which stimulate the sexual organs.
Astringents	= drugs which cause contraction of the mucous membranes by decreasing the size of blood-vessels.
Carminatives	= drugs which aid the expulsion of gas from the stomach or intestines.
Aperients Cathartics Laxatives Purgatives	} = drugs which open the bowels.
Diaphoretics	
Diuretics	
Ecbolics	
Emetics	= drugs which cause vomiting.
Expectorants	= drugs which promote the ejection of phlegm (sputum).
Galactagogues	= drugs which increase the flow of milk.
Hypnotics Narcotics Soporifics	} = drugs which induce sleep.
Mydriatics	
Myotics	

Sedatives	= drugs which allay pain or soothe the inflamed parts.
Styptics	= drugs which stop bleeding when applied locally.
Tonics	= drugs which improve the general health.

It is important that the nurse should know some of the ill effects which an overdose of certain medicines can produce, so that their occurrence may not be unfamiliar to her. She may then, in a tactful and unofficious manner, draw the doctor's attention to the symptoms, from which he will be able to deduce their origin.

Apart from an overdose, similar symptoms can be produced in certain people who are unable to take the drug in small doses, or who, as it is put technically, possess an idiosyncrasy to the particular drug.

For the treatment of cases of poisoning, the nurse is referred to the end of this chapter, page 46.

It is impossible to give in a book of this size a complete list of drugs which, through a single overdose, or more commonly through the cumulative action of a course of pharmacopœial doses, give rise to signs of poisoning. Only a few of the most important ones will be selected.

Aconite.—The prominent signs and symptoms of this form of poisoning are severe burning and tingling, followed by numbness, of the lips and tongue. Severe pain in the stomach follows with vomiting and diarrhœa. The skin is cold and clammy, and collapse may ensue.

Alcohol.—Apart from chronic poisoning, which is described in Chapter XII, acute poisoning (commonly known as drunkenness) may occur, during which the patient at first becomes noisy and excited, later stupid, possibly melancholic, and finally unconscious. His

face becomes flushed, his eyes dilated, his pulse is full and bounding, his breath smells of alcohol, and he may vomit. Collapse may occur, being preceded by clammy face and hands, a small pulse, and a subnormal temperature. A word of warning is necessary: do not hastily diagnose drunkenness in mistake for apoplexy where unconsciousness also exists, and often through the administration of stimulants by friends the odour of alcohol is present.

Antifebrin (Acetnilide).—Cyanosis, with quick breathing, vomiting, coldness, and insensibility are usual. A rash sometimes appears.

Antipyrine.—Collapse and cyanosis are present. The urine should be preserved for testing purposes.

Arsenic.—Acute poisoning results in nausea, vomiting, and epigastric pain. There is often diarrhoea, with colicky pains and cramps in the legs. The patient dies collapsed.

In chronic poisoning, in addition to the gastro-intestinal disturbances (which are not so severe as in the case of acute poisoning), signs of neuritis, as described in Chapter XI, may develop, and pigmentation occurs all over the body.

Aspirin is a salicylate compound. The signs and symptoms of an overdose are the same as in the case of sodium salicylate (*vide infra*).

Atropin and Belladonna.—The active principle of belladonna is atropin; the signs of poisoning are the same for both. The pupils are widely dilated. The mouth becomes dry, so that swallowing is difficult and thirst is extreme. The pulse becomes very rapid, 120 or more beats per minute. A scarlatiniform rash may

develop. Patients are often dizzy and delirious, with a curious tendency to perform persistently certain acts, such as sewing, catching flies, &c. They are sometimes extremely noisy. Constipation and retention of urine are usually present.

Bromides.—An overdose causes extreme dullness, lethargy, depression, and even melancholia. The breath is foul, the hands are cold, the pulse extremely slow. In bad cases coma may ensue. A rash consisting of red spots resembling acne appears, chiefly on the face and back.

Cantharides.—Poisoning may result from the external application in the form of liniments or blisters, as well as from the inadvertent administration of the drug internally. It is characterised by a sensation of burning in the throat and stomach with vomiting, often of blood-stained material. Great pain is experienced in the loins, the genital organs are red and swollen, and the urine is generally scanty and blood-stained.

Chloral.—Contracted pupils, drowsiness, and cyanosis are present in acute poisoning. More chronic symptoms of gastro-intestinal irritation with an erythematous eruption and general depression are seen when the drug is frequently taken.

Cocaine.—In acute poisoning, convulsions, dilated pupils, frequent pulse and rapid respirations are observed. The temperature is raised to about 100° , and unconsciousness speedily follows.

In chronic poisoning (Cocainism) there is mental apathy, emaciation, and a curious feeling of cutaneous irritation. Hallucinations often occur.

Digitalis.—Vomiting is the most common symptom.

In addition there may be thirst, pain in the abdomen, with or without diarrhoea, headache, faintness, prostration, dimness of vision, noises in the ears, and delirium. The respirations and pulse-rate become slow, and the urine becomes scanty. Finally coma develops, and death occurs.

Iodides.—The characteristic symptoms are running at the nose, increased secretion of saliva, sore throat—in fact the picture of an acute cold. An eruption occurs similar to that produced by an overdose of bromides.

Mercury.—Foul breath, increased salivation and soreness of the gums are the first warnings of an overdose or of intolerance. Vomiting, diarrhoea, and colicky pains in the abdomen are common. The patient becomes anæmic. A fine tremor is often seen in the muscles of the face and hands. Headaches and delirium may occur.

Morphia and Opium.—The signs of poisoning for both are the same. Acute poisoning is denoted by somnolence, deepening into coma, slowing of the respirations, and death from asphyxia. The pupils are extremely contracted (“pin point”).

Chronic poisoning (Morphinism). The patient's character deteriorates, so that he becomes deceitful and cowardly, and capable of descending to the lowest depths of degradation to satisfy his craving. He suffers from loss of appetite and abdominal pains. Wasting becomes extreme. There may be neuralgia in the limbs.

[*N.B.*—Laudanum, paregoric, and chlorodyne are preparations containing opium.]

Quinine.—Intolerance is characterised by slight deaf-

ness, noises in the ears, a sense of fullness in the head, with giddiness and inability to see or walk properly.

Phenacetin.—The signs of poisoning are collapse, slowing of the breathing, cyanosis, vomiting, diarrhoea, and giddiness. The urine may be chocolate coloured.

Potassium Chlorate.—Poisoning is denoted by abdominal pain, cyanosis, delirium, and collapse. The urine may be dark coloured.

Salicylates.—An overdose leads, as a rule, to deafness, noises in the ears, and headache. Later there may be vomiting, slowing of the pulse, and delirium. In severe cases bleeding occurs from various parts of the body, especially the nose, the pulse and respirations become irregular, and coma ensues, followed by death.

Santonin, when given in an overdose, produces yellow vision, dark-coloured urine, and occasionally vomiting, diarrhoea, delirium, and collapse.

Strychnine.—If a poisonous dose of strychnine (or of *Nux Vomica*, of which it is the active principle) be taken, twitchings of the muscles all over the body occur, eventually developing into convulsions of the most violent character, the condition having a marked resemblance to tetanus ("lock-jaw").

Sulphonal.—An overdose produces unconsciousness, slow pulse and respirations. The urine is dark coloured.

Thyroid Extract.—When an overdose of this drug is taken the patient complains of headache, tremors, rapid heart-beat, and sweating. The temperature may rise, and depression, vomiting, and diarrhoea may occur. In children convulsions may also take place.

Trional, Veronal. — Either may cause giddiness, vomiting, and, in very severe cases, collapse. Dark-coloured urine may be passed.

ADMINISTRATION OF MEDICINES

Medicine can be administered by the mouth in the form of liquids, pills, powders, or oils. The liquids are usually called draughts or mixtures, and the method of giving them has been described above.

Pills.—If a pill cannot be taken in the ordinary way, to facilitate swallowing, the pill is placed beneath the tongue behind the lower front teeth, a sip of water is then swallowed, whilst the tip of the tongue is put against the roof of the mouth. The fluid washes the pill to the back of the throat, and so renders swallowing easy.

Tablets or Tabloids can be taken in a similar manner.

Powders or Crushed Tablets.—These should never be given dry. They can either be soaked in water, and stirred just previous to drinking, or swallowed in a wafer paper. The wafer paper is softened in water and laid upon a spoon. Into the centre of the paper is placed the powder, and the edges of the paper are folded over it. The spoon is filled with water, and its contents are swallowed together.

Cachets.—The cachet is dipped into a wineglassful of water and placed upon the tongue. The water is then swallowed, and the cachet is washed down.

Oils.—There are many methods of giving oils, involving the use of sherry, lemon-juice, or other flavouring; the details are the same for all. Squeeze the

juice of half a lemon into a wine-glass, and swill it round so as to coat the whole of the inner surface of the glass. Then pour the oil into the centre of the glass. Rub the rim of the glass with the lemon, then let the patient first suck a little of the lemon, and then take the oil, which will be found to be tasteless. It is advisable to educate a child to take cod-liver oil without any such expedient as the above.

The usual method of administering medicines is, of course, by the mouth, as described above; but there are other familiar ways of bringing a patient under the influence of drugs, and these merit a brief description.

Hypodermic Injection.—For this purpose a **hypodermic syringe** and needle are required. The syringe

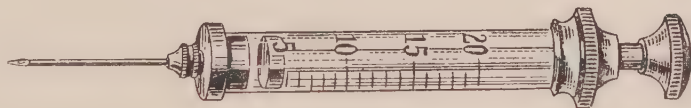


FIG. 19.

consists of a barrel made of glass or metal, fitted with a piston. The barrel is graduated in minims or cubic centimetres. The needle, which fits very accurately into the end of the barrel, is always kept apart, and is provided with a piece of wire running through it, in order to keep its passage perfectly clean and open. Before using the syringe, the whole apparatus is taken to pieces, and the separate parts are placed in water, which is brought to the boil; in other words, they are sterilised.

A tablet of the required drug is then put into the tube, the needle is attached, and a few drops of water

are drawn up into the syringe, which is well shaken to dissolve the tablet.¹ Any air-bubbles are then expelled by holding the syringe vertically upright, pulling down the piston to collect all the air into one large bubble, and then expelling it through the needle.

The portion of skin chosen for injection (which may be the arm, forearm, buttock, or lower part of the abdomen) is first washed with some antiseptic. The nurse then pinches up a fold of skin, and pushes the needle sharply in; the solution is then slowly injected. After pulling out the needle, a small pledget of cotton-wool is placed over the puncture for a few seconds.

After use, the needle and syringe are washed in an antiseptic solution and dried. The wire is then replaced through the needle.

It is advisable always to select fresh parts of the body for the site of subsequent injections.

For serum injections a special **serum syringe** (one of large calibre) is utilised. The same directions as given

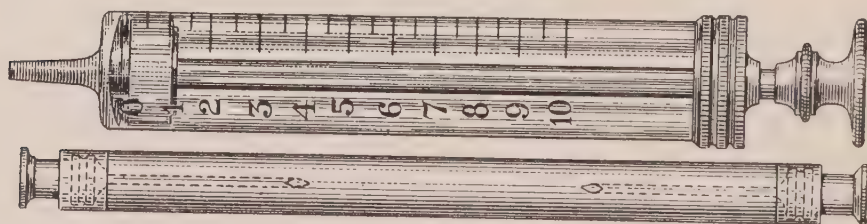


FIG. 20.

above apply for its use. The quantity of fluid injected is usually considerable, and it is customary to place a piece of gauze soaked in collodion over the puncture.

Enemata.—An enema may be given for the purpose

¹ In some cases a ready-made solution of known strength is used. In such cases the most accurate measurement of the amount used must be made.

of emptying the bowel, in which case the instrument most often used is a **Higginson's syringe**.

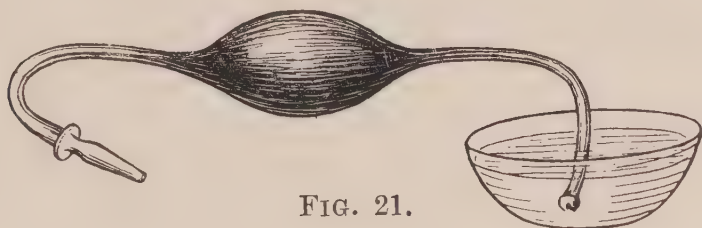


FIG. 21.

The following are in common use:—

1. *Soap Enema*.—This enema is always used as a purgative. It consists of one and a half to two ounces of soft soap in a pint of water at a temperature of 100° Fahr. Ordinary yellow soap should not be employed, as it is apt to cause an enema rash.

2. *Salt and Water Enema*.—This consists of a drachm of common salt to a pint of water. This enema is especially employed for children with thread worms, and it is administered after the bowels have been opened.

3. *Turpentine Enema*.—This consists of an ounce of turpentine in two pints of soap and water. It acts as a purgative, and also relieves intestinal flatulence.

4. *Glycerine Enema*.—A drachm is generally given without water in the special instrument shown.

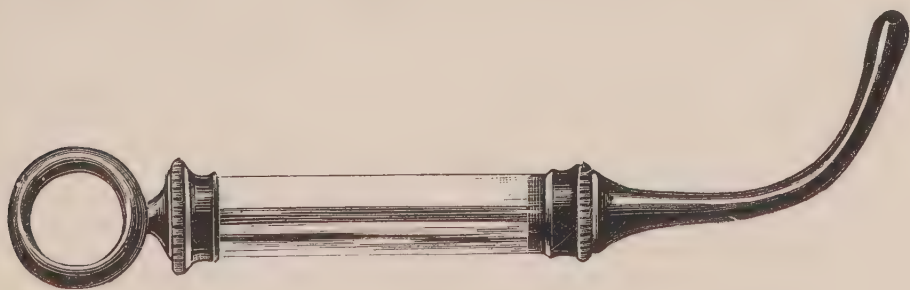


FIG. 22.

Before administering an enema, the nurse should be prepared with a bed-pan or similar utensil and a towel.

The patient lies on his left side with his knees drawn up and his buttocks near the edge of the bed. The nurse having greased the nozzle, the syringe is filled with the solution so as to expel all the air, the nozzle is then inserted into the anus for about two inches. After injecting the fluid steadily and slowly, the nozzle is withdrawn and the buttocks are pressed together for a few minutes, while the patient is told to lie perfectly still and retain the fluid as long as he can.

When an enema is given for permanent retention it is generally administered by means of a catheter and

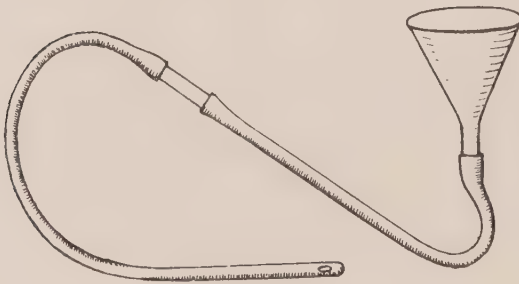


FIG. 23.

funnel, the precaution having first been taken to empty the lower bowel. The buttocks should be raised by means of a pillow or by lifting up the foot of the bed. The fluid should never be very hot, and its administra-

tion should always be very slow—the speed of the injection being regulated by lowering or raising the funnel. After removing the catheter the buttocks are pressed together for several minutes while the patient lies perfectly still. In this manner the following drugs can be administered :—

(a) *Starch and Opium Enema*, consisting of 20 minims of tincture of opium in 2 oz. of mucilage of starch. The latter is made with cold water brought to the boil and allowed to cool.

This is given to stop diarrhœa.

(b) *Coffee and Brandy*, consisting of about 4 oz. coffee and 2 oz. brandy. The temperature of this

mixture, since it is used as a stimulant, should be about 100° F.

(c) *Saline Infusions*, consisting of 1 drachm of salt in 1 pint of water. This is employed as a stimulant, or to relieve thirst when fluid by the mouth is not permissible.

Nutrient Enemata.—When patients are not allowed food by the mouth, nutrient enemata, which may consist of the following ingredients, are frequently used :—

Plasmon	grms. 20	or Milk	3 iv, with two eggs
Glucose	grms. 20		beaten up in it.
Salt	gram. 1	Liq. pancreaticus	3 ii.
Water	oz. 7	Sodium bicarbonate	gr. xx.
		Salt	gr. xxx.

The lower bowel must be washed out once every day with warm water, and a nutrient enema must always be given into an empty rectum. To achieve this an ordinary soap and water enema must first be administered.

Nutrient enemata are not so often employed nowadays as formerly.

A High Enema.—A long rubber tube is necessary for a high enema. The enemata given in this way are composed of soap, salt and water, and turpentine. The tube or catheter is passed for about 10 inches, and the details for procedure are the same as given for permanent retention on p. 42. A long *rectal tube* is sometimes used for the relief of abdominal distension. This tube is passed into the rectum for about 10 inches or less if the gas escapes. The other end of the tube is placed in a bowl containing carbolic lotion.

Suppositories.—Suppositories are conical-shaped bodies composed of cocoa butter containing some drug.

They are introduced into the rectum. (**Pessaries** are made in the same way for insertion into the vagina.)

Emetics.—An occasion may arise when it is necessary for a nurse to administer an emetic, for example, in a case of poisoning. This should only be done when the case is urgent, and there is reason to suppose that the doctor, who has, of course, been summoned, cannot arrive for some time. The following are the materials most commonly employed—in all cases the patient swallows as much of the mixture as he is able.

1. *Salt*.—Two tablespoonfuls of table salt dissolved in a tumblerful of warm water.

2. *Mustard*.—A tablespoonful of mustard well stirred up in a tumblerful of warm water.

3. *Sulphate of Zinc*.—A quarter to half of a teaspoonful of zinc sulphate in half a tumbler of tepid water.

4. *Ipecacuanha*.—A tablespoonful of ipecacuanha wine or half a tablespoonful of powdered ipecacuanha in half a tumblerful of warm water.

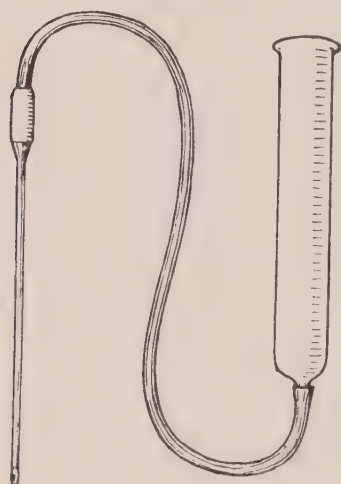


FIG. 24.

The other means of giving medicines, *i.e.* poultices, gargles, blisters, liniments, &c., will be dealt with in the next chapter.

Stomach Pump.—As an alternative to an emetic the stomach contents can be removed by means of a stomach tube or pump, but this must never be used by the nurse on her own responsibility. It consists of a glass funnel attached to a piece of rubber tubing (Fig. 24). The end of the tubing

is connected to the œsophageal tubing by means of a piece of glass tubing through which the passage of the fluid can be observed. It is used not only for washing out the stomach in the case of poisoning, but also for lavage (see p. 126) and for administering food (see p. 242 for the description of its passage).

TREATMENT OF POISONING.

On the following pages in tabular form will be found the commoner poisons with the appropriate treatment for each. In every case it must be remembered that the nurse's first duty is to send for the doctor, but she should not delay in carrying out such of the instructions given below as are in her power while she awaits his arrival.

In the interval of waiting the nurse will be faced by one of the two following conditions—either the nature of the poison is known or it is not. Unless the lips, mouth, and throat show signs of blistering, burning, and charring suggestive of acids or alkalies, it is safe to administer an emetic or some simple purge like castor oil, and afterwards—

1. When the poison is unknown—give milk, raw eggs beaten up in milk or water, strong tea, olive or salad oil. Oils or fats should never be administered if there is the slightest suspicion that phosphorus is the cause of poisoning.

2. When the poison is known give the same substances, and send to the chemist for any special remedy necessary for the particular poison in question, so that it will be to hand when the doctor arrives.

TABLE OF POISONS AND TREATMENT.

Poison.	Whether an Emetic should be Used.	Whether the Stomach Pump should be got ready for the Doctor.	Antidote.	General.	After Emetic, &c.
Hydrochloric acid (spirits of salt). Nitric acid. Sulphuric acid (oil of vitriol).	No.	No.	Whitening, white-wash chalk. Wall plaster or magnesium carbonate or Carbonate of soda in water.	Keep the patient warm.	Give soap and water in large draughts, also egg and milk or olive oil and water ($\frac{1}{4}$ pint in a pint of water).
Oxalic acid, salts of lemon. Salts of sorrel. Acetic acid (vinegar).	No.	No.	Ditto.	Ditto.	Give a dose of castor oil, and allow milk to be drunk freely.
Carbolic acid.	No.	Yes.	A tablespoonful of either Epsom salts or Glauber salts in a glass of warm water. Repeat if necessary, or give lime water.	Give alcohol and stimulants and keep the extremities warm. Try artificial respiration.	Give milk, white of egg in water, or olive oil in water ($\frac{1}{4}$ pint in a pint of water).

Hydrocyanic acid (Prussic acid). Cyanides.	Yes.	Yes.	Give mixture of magnesia 5ii. and Tinc. Ferri Per- chlor. M xx. or Iron sulphate gr. xv in a wine glass of water. Repeat if neces- sary.	Give the patient plenty of fresh air, and dash cold water over him continu- ously. Artificial respiration should be tried, and am- monia on cotton- wool put under the nostrils Stimu- lants can be admin- istered.		
Caustic soda. Caustic potash. Lime. Ammonia. Soap lees.	No.	No.	Vinegar and water, lemon juice and water. Half a teaspoonful of citric or tartaric acid in half a pint of water.	Give stimulants and keep warm.	Give milk, olive oil in water ($\frac{1}{4}$ pint in a pint of water) and white of egg.	
Antimony salts. Tartar emetic.	Yes.	Yes.	Tannic acid, gr. xx in water. Strong tea and coffee.	Give stimulants. Keep patient warm.	When vomiting subsides, give white of egg in water or milk.	

TABLE OF POISONS AND TREATMENT—continued.

Poison.	Whether an Emetic should be Used.	Whether the Stomach Pump should be got ready for the Doctor.	Antidote.	General.	After Emetic, &c.
Arsenic. Fowler's solution.	Yes.	Yes.	Tinct. Ferri Perchlor. $\frac{1}{2}$ oz., with 2 oz. washing soda in half a tumbler of water.	Stimulants, warmth, sips of iced water for the thirst.	Milk and eggs, barley water, and olive oil in water.
Mercury. Corrosive sublimate. Red or white precipitate.	Yes.	Yes.	The doctor will give opium for the pain and purging.	Stimulants may be necessary. Before emptying the stomach give large quantities of white of egg in milk or water, egg and milk, or flour and water.	Continue the drinks.
Copper. Blue vitriol. Verdigris.	No.	Yes.	A teaspoonful of ferrocyanide of potassium in half a tumbler of water. The doctor may give morphia.	Before emptying the stomach, give large quantities of egg and milk.	Continue the drinks.

Phosphorus. Rat poison. Matches.	Yes.	Yes.	Copper sulphate, gr. iii, in half a tumbler of water every quarter of an hour until vomiting occurs. Or zinc sulphate, gr. xx, in half a tumbler of water, or sanitas, or French oil of turpentine, 40 drops, in 1 oz. of water every 15 mins. for 4 doses.	Give egg and milk, and avoid oils and fats.
Aconite. Monkshood.	Yes.	Yes.	The doctor will give digitalis in some form.	Strong tea or coffee.
Belladonna. Deadly nightshade.	Yes.	Yes.	The doctor will give pilocarpine and morphia.	Give stimulants, hot coffee, and keep warm. Artificial respiration may be necessary.

TABLE OF POISONS AND TREATMENT—*continued.*

Poison.	Whether an Emetic should be Used.	Whether the Stomach Pump should be got ready for the Doctor.	Antidote.	General.	After Emetic, &c.
Nicotine, tobacco. Weed killer.	Yes.	Yes.		Warmth and stimulants. Artificial respiration may be necessary.	
Opium, morphia, laudanum, chlorodyne, paregoric, &c.	Yes, if acute.	Yes, in acute poisoning.	Potassium perman- ganate, gr. x, in half a tumbler of water.	Rouse the patient and dash cold water over the face. Artificial respira- tion may be neces- sary.	Keep the extremi- ties warm. Give hot coffee, &c.
strychnine, nux vomica. Vermin killer.	Yes.	Yes.	Potassium bromide gr. xxx. Chloral hydrate, gr. xv, in half a tumbler of water.	Artificial respiration may be necessary.	

Antifebrin, or antipyrine, or phenacetin.	No.	No.	The doctor will give strychnine and digitalis.	The patient must be made to lie down. Stimulants are given, keep the patient warm, artificial respiration may be necessary.	
Sulphonal, or trional, or veronal.	No.	No.	Ditto.	Ditto.	
Bad mushrooms, fish or food, &c.	Yes.	Yes.		Stimulants and warmth.	A purge will generally be necessary.
Conium, or hemlock.	Yes.	Yes.	The doctor will give strychnine.	Stimulants, warmth, and artificial respiration.	

TABLE OF POISONS AND TREATMENT—*continued.*

Poison.	Whether an Emetic should be Used.	Whether the Stomach Pump should be got ready for the Doctor.	Antidote.	General.	After Emetic, &c.
Gas.	No.	No.	The doctor will give respiratory and cardiac tonics.	Plenty of fresh air, stimulants, and warmth. Apply ammonia to the nostrils. Rub the extremities. Artificial respiration and oxygen may be necessary. The dashing of cold water on the face may revive.	
Turpentine.	Yes.	Yes.	Epsom salts 1 oz. in half a tumbler of water. Morphia may be necessary.	Administer milk and white of egg.	

CHAPTER IV

EXTERNAL APPLICATIONS AND BATHS

IN addition to the methods described in the last chapter for treatment by the internal administration of medicine, there are also many other ways of relieving the prominent symptoms of disease. The details of the more important of these are described below.

Liniments are applications for rubbing into the skin. The affected part, after being washed, is rubbed with a liniment until the skin is dry, red, and glowing.

Lotions are watery solutions for external use. A piece of lint is soaked in the lotion, partly wrung out, and applied to the affected part, covered with oiled silk or jaconet, and loosely bandaged in position.

Ointments can be applied spread on a piece of lint, or they may be rubbed in by the hand. This latter process is known as **inunction**.

Iodine.—After washing the affected part, a thin layer of tincture of iodine is painted on with a camel's-hair brush. This is generally sufficient in the case of children, but in adults, after this has dried, a second coating may be applied.

Liniment of iodine or liquor iodi fortis are much stronger preparations of iodine than the tincture.

Mustard Plaster.—Two parts of mustard to one of flour are mixed into a paste with lukewarm water. The mixture is spread on to a piece of linen which has been cut to a proper shape and size, and covered with a single layer of muslin. The plaster should never be allowed to remain on for more than twenty minutes, and should always be removed before the skin is blistered. It should naturally be made much weaker for a child or a person with an exceptionally delicate skin. After removal, the skin should be carefully dried, and any particles of mustard removed. The area is then dusted with zinc and starch powder, and finally covered with wool and a bandage.

Wet Packs may be cold, hot, or continuous.

Cold Wet Pack. — A mackintosh covered by a blanket is placed over the mattress. A sheet is wrung out of warm water (temperature 75° to 80°) and wrapped round the patient. Two blankets are placed over this, and he is left from a quarter to half an hour. He is then rapidly dried, and replaced between hot, dry blankets.

Hot Wet Pack.—To make this a sheet is wrung out of boiling water in which a few ounces of mustard have been placed (see p. 60). The patient is wrapped up in this sheet, as hot as he can bear it, for two or three hours, during which time as he lies in bed he sips barley water or whey, and afterwards is rubbed dry and placed between warmed blankets. Sometimes a *continuous wet pack* is ordered, in which case the patient's body, upper arms, and thighs are wrapped in a sheet wrung out of water at 90° to 100° . The fore-arms and legs, which are not covered by the pack, are enveloped in cotton-wool. The pack is kept moist

by squeezing a sponge over it. The wet pack may remain on for several hours, or even days, being changed, of course, should it become soiled.

Salt Pack.—One ounce of salt is placed in a basin, into which is poured about half a pint of warm water. A piece of flannel is soaked in the solution and wrapped round the joint, covered with oiled silk, and kept in position by a bandage. This is placed on each night, and removed in the morning.

Fomentations. (**Stupe** is an alternative word for fomentation.)—A piece of cotton-wool or old flannel is placed upon the wringer (Fig. 25) and dipped into boiling water. By twisting the two pieces of wood in opposite directions, the fomentation is wrung quite dry. Care must be taken to leave no excess of moisture in it, as the patient may be scalded. The fomentation is shaken out, and applied to the part required as hot as the patient can bear it. Over this a piece of jaconet is placed, covered by cotton-wool and bandaged firmly in position.

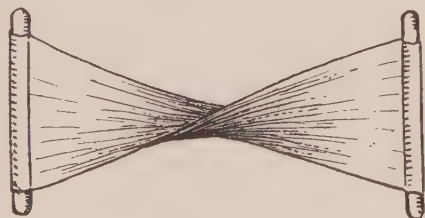


FIG. 25.

A *Turpentine Fomentation* is made in the same way, one to two ounces of turpentine being added to the boiling water. The turpentine will float on the surface, and if the wringer be lifted out in a horizontal manner, the oil will be spread over the surface of the fomentation. It must be taken off before any blistering occurs, and if on its removal the skin is seen to be unduly red, zinc and starch powder can be applied.

Opium Fomentations.—Opium can be added in a

similar manner, half a teaspoonful of the tincture being used instead of the turpentine.

Poppy-head Fomentations is an alternative method of applying opium. Half a dozen poppy heads are broken up and boiled in $1\frac{1}{2}$ pints of water for twenty minutes, and the mixture poured through a strainer. The cotton-wool is dipped into the fluid and applied as above.

Belladonna Fomentations.—A fomentation with half a teaspoonful of tincture of belladonna is occasionally ordered, and the details for the preparation are the same as before. Since belladonna can be absorbed through the skin, poisoning may possibly occur, and the nurse should be on her guard for signs of such a mishap.

Spongeo Piline or *Thermogen* are two patent preparations which act in the same way as fomentations, and can be used in their stead.

Linseed Poultice.—First put on the kettle to boil, and if the weather is cold, or the poultice has to be carried some distance from the fire, or a very small poultice is to be used, then all utensils employed must be warmed. The patient should be got ready, as far as possible, before the poultice is brought to him, but he should remain covered with the bedclothes until the poultice is absolutely at the bedside. (A basin should be at hand in which to receive the old poultice.)

The skin should be gently rubbed dry with a warm towel or a piece of cotton-wool between the applications to prevent itching. A well-made poultice will not stick; it should be half an inch thick, and put on as warm as can be borne. Tease out some tow thinly and evenly, or have ready some old linen. Rinse out the

basin with boiling water, and pour in as much boiling water as is wanted. Sprinkle in with one hand the crushed linseed (not linseed meal, which is too dry), stirring it quickly all the time with a spatula, until the paste is of the right consistency. This is recognised by the fact that the spatula either stands upright in the mass or falls gently to one side, or the whole of the mass comes clean away from the sides of the bowl on the spatula. Turn it out in a mass on the tow, and spread it over the surface with the spatula, which should be dipped occasionally into boiling water to prevent sticking, bring the edges together, and carry it to the patient. The freshly-applied poultice is covered with jaconet, which must be larger than the poultice, over this is placed a layer of cotton-wool which is larger than the jaconet, and finally a bandage. A large poultice should remain on from two to four hours, a small one about two hours.

All poultices used for infectious cases should be burned in a good fire (not left to smoulder on a small one), in order to prevent the poison escaping up the chimney into the atmosphere. When poultices are discontinued, a cotton-wool pad must be worn by the patient for some days subsequently, and gradually left off.

Mustard Poultices.—The strength of these poultices depends on the age and illness of the patient. For an adult, equal parts or one of mustard to two of linseed may be used. For a child the mixture must contain less mustard, one part to five or six. Tepid water is added to the mustard and it is worked up into a paste, whilst boiling water is added to the linseed as for a linseed poultice. The two preparations are then

intimately mixed and covered with fine muslin. The mixture should be left on the patient for ten to fifteen minutes, not longer. After removal, the skin must be dried and care taken to remove all the particles of mustard, after which it should be covered by a layer of cotton-wool as quickly as possible.

Bread Poultices.—These, although very convenient, have the disadvantage of not retaining the heat as long as linseed poultices.

Mix a sufficient quantity of stale bread-crumbs with boiling water and allow to stand for ten minutes in a vessel which is placed in boiling water. After this time it is well stirred up with a fork, the water is poured off, and boiling water added for a minute. Finally the water is drained off and the poultice applied to the skin, which has been previously greased to prevent the bread sticking.

Starch Poultice.—The starch is mixed to a paste with cold water, and boiling water is added until a thick paste is formed. The paste is spread on muslin or soft linen and applied.

Sponging.—The temperature in fever may be lowered by *sponging*, which is accomplished in the following manner. The patient is wrapped in a blanket, each of his limbs is exposed in turn and sponged for four or five minutes with tepid water at a temperature of 65° to 70° Fahr. Finally his trunk is treated in the same way. After remaining in the blanket for half an hour he is put back between sheets.

Baths.—Before giving any sort of bath, a nurse should obtain exact directions as to its nature, temperature, duration, &c.

Cold Bath.—Cold baths are of use in fevers, delirium, and in general treatment, to improve the circulation and general nutrition. The bath is half filled with water at about 65° Fahrenheit. Having pinned a towel round the patient's hips, his sleeping clothes are removed. After sponging his head and neck with cold water, the bedclothes are removed. A sheet or perforated canvas stretcher on poles is placed under him, and he is gently lifted into the bath. The patient's skin is then rubbed gently but vigorously by the nurse. The pulse will be observed to get smaller and the breathing (owing to the shock) may become temporarily laboured. Shivering occasionally occurs. After ten minutes a blanket is placed over the top of the bath and the towel removed from the hips. The patient is then lifted out in the manner described on p. 17 and placed on a warm blanket on his bed. He is rapidly dried with a warm towel. The two blankets are drawn away and he is covered with a blanket and a sheet, and his sleeping clothes are replaced. There is no need to give him hot bottles unless he shivers or remains cold. Should these last two symptoms be prominent, a hot drink must be administered, whilst brandy and a hypodermic syringe must be at hand in case of collapse.

In cases where the bathroom is inaccessible or the patient is too ill to be carried, a substitute in the form of a large square piece of mackintosh placed under the patient may be used. A pillow at the head of the bed, and one placed beneath the knees, and a bolster along each side of the patient will convert the mackintosh into a kind of well. Having removed the bedclothes and nightdress, water can then be freely sponged over the patient's body.

Tepid Bath.—The water in this case is placed in the bath at a temperature of 90° Fahr., and is then slowly reduced to 75° while the patient is in the bath. This can be done by adding cold water or ice, the nurse keeping the water in motion with her hand in order to preserve a uniform mixture. The other details are as for a cold bath.

Hot Baths are useful for relieving pain or muscular spasm, promoting sleep, and for such conditions as nephritis. The temperature for a hot bath should be between 100° and 106°, being gauged by means of a **bath thermometer** (see Fig. 5). The details for giving the bath are the same as those for a cold bath, except that after the hot bath the patient is left in the blankets without being dried for an hour, and may be given water to drink to increase perspiration. At the expiration of this time he is sponged with tepid water, dried with warm towels, and put to bed.

Mustard Bath is generally made with one ounce of mustard to every five gallons of water. The mustard should never be sprinkled over the surface of the water, but should be mixed into a paste beforehand. The temperature is about 100° to 106°, never more. The nurse should support the patient whilst in the bath, and remove him when her own skin begins to tingle.

Brine Baths are ordinary hot baths, to which about half a stone of table salt has been added.

Bran Bath.—4 lbs. of bran are boiled in a gallon of water. The bran is then strained off and the infusion is added to an ordinary hot bath. The patient must not be rubbed whilst in this bath.

Hot-air Bath.—A blanket is placed beneath the patient and a small blanket folded double placed over him. The bedclothes having been taken away, two

cradles are fixed over the whole body from the shoulders to the feet. The cradles are covered by two blankets, in between which lies a mackintosh. The blankets are well tucked in all round the sides, top and bottom. *Allen's apparatus* (see Fig. 26) is placed at the foot of the bed, and the spout of the kettle wrapped in a piece of damp flannel fixed inside the cradles. A handkerchief wrung out of iced water is placed on the patient's forehead and changed frequently, and he is given sips of cold water to drink. According to the nature of the patient's illness he is kept in the bath

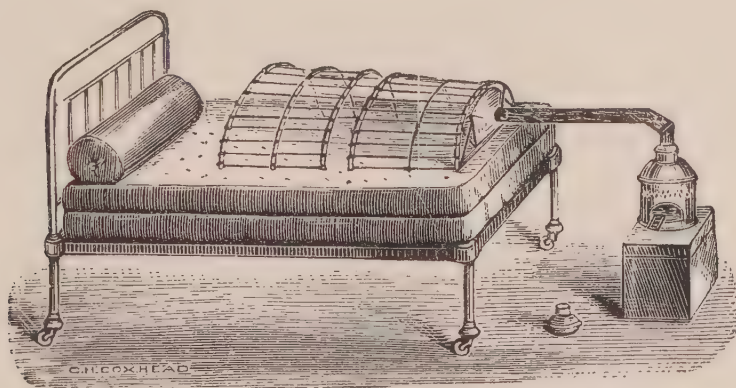


FIG. 26.

for a varying time, but fifteen minutes after his skin has begun to perspire is generally sufficient. The nurse must carefully observe the temperature of the bath and regulate it by means of the lamp, according to the sensation of the patient, in case faintness or exhaustion occurs. The kettle having been removed, the patient is covered by the small folded blanket, and when he is completely covered up, the cradles and mackintosh are removed and the bedclothes placed gently over him. The blankets between which the patient is lying become soaked with perspiration, and

will require changing from time to time. When sweating stops, the patient should be sponged with warm water and placed in warm sleeping-clothes.

Vapour Bath.—The same apparatus as before is used, only in this case the boiler is fixed in position. When Allen's apparatus is not procurable a bronchitis kettle may be used. In this case a small tin



FIG. 27.

should be fixed on the end of the spout to catch the dripping water, which would otherwise blister the patient. Other details are the same as for the hot-air bath.

Either of the above baths may be given to a patient sitting in a chair, and except in the method of preparation described below the details are the same. The patient is stripped and closely wrapped in a blanket. He then sits on a wooden chair while a

blanket is placed right round the body and chair, leaving only the head exposed. The kettle is arranged so that the spout projects to one side of the chair to prevent possible blistering of the legs, the blanket being then carefully pinned round the spout to prevent the escape of vapour.

Mercurial Vapour Baths.—Mercury can be given in the above manner. A teaspoonful of calomel is placed in the dish over a spirit lamp, as shown in Fig. 27, and when it has completely evaporated the patient is placed, with the condensed mercury still on his skin, in warm night-clothes and put back into bed. No rubbing must be done, as this will remove the mercury.

Electric Baths.—See “Nervous Diseases,” Chap. XI.

Counter-irritants are applications which cause irritation in the skin over the affected organ in opposition to the inflammation existing therein ; as, for example, when leeches, blisters, or poultices are placed over the loins in order to dilate the blood vessels in that neighbourhood, so as to deplete the inflamed kidney of blood.

Leeches.—The nurse will receive instructions to which part the leech is to be applied, and will wash the area with warm water. She should be careful not to use any scented soap nor any antiseptic, otherwise the leech will not bite. The leech will be brought in a box, from which it should be allowed to crawl on to a clean towel, or else placed in a test tube with its head towards the open end. The head of the leech can be recognised from the fact that it is narrower than the tail. Should the leech refuse to bite, a little milk or sugar of milk can be rubbed on the skin. Scratching the skin so as

to produce blood will also induce biting. It is kept in position by means of a medicine or wine glass placed over it. When it has finished sucking, which is usually after about an hour, it should be made to loosen its hold by placing a little salt upon it. It will by this time have withdrawn from 2 to 4 teaspoonfuls of blood, and should it be necessary to extract more, a fomentation should be placed over the wound. When sufficient blood has been withdrawn, a piece of wool is placed over the opening. Occasionally this wool may have to be soaked in adrenalin (1 in a 1000). A permanent triangular scar is left, which is red at first, and subsequently becomes white.

The excellence of leeches in relieving pain is very striking.

Cupping.—CUPS are glass vessels of the shape shown in Fig. 28. The old-fashioned cup had its edges

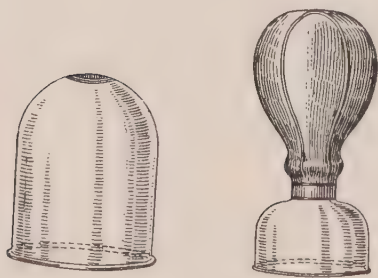


FIG. 28.

greased with vaseline, and was then rinsed out with methylated spirit. A match was applied to the spirit, which burned for a moment or two. When this ceased, the vessel was placed against the patient's skin. As the air within the cup contracted, the flesh was

drawn into a lump. After an interval of five or ten minutes the cup was removed by gently insinuating the finger under the edge. The more modern form of cup has an india-rubber bulb at the top, which is squeezed empty before being applied to the skin. The expansion of the bulb causes the flesh to rise as before.

WET CUPPING, which consisted in lancing the skin prior to applying the cup, is nowadays seldom done.

Mustard Leaf.—The affected part is first bathed, and the mustard leaf having been dipped in warm water, is applied and covered with wool and a bandage. After removal the procedure is the same as in the case of mustard plaster. During the application the skin must be carefully watched, in order that the leaf may be removed before undue irritation is caused.

Blister.—This is either done by means of a plaster or blistering fluid, both being preparations of cantharides. The plaster (*emplastrum lyttæ*) is cut to the shape and size required, moistened with warm water, and placed in position, being secured with cotton-wool and a bandage. This results in the formation of a blister or bleb. The plaster should be carefully removed after about five hours in the case of a child, or ten hours in the case of an adult. At the end of this time, if it is required to increase the size of the blister, a poultice or fomentation may be applied. The blister is then snipped at the lower point with clean scissors and the fluid gently pressed out with cotton-wool. After dusting with powder, cotton-wool is bandaged over it. The nurse should always ascertain beforehand whether the blister is to be opened or left untouched.

If blistering fluid is used, the area to be treated is previously localised by a ring of vaseline.

Cradling.—A **cradle** may be placed over the patient, and when this is insufficient to lower the temperature a tray containing ice is fixed underneath it (see Fig. 29).

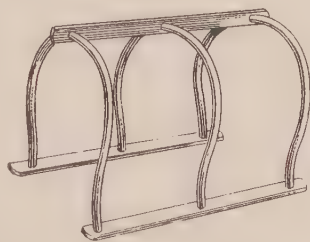


FIG. 29.

Leiter's Coils.—These are hollow coils of metal through which cold water circulates. They can be

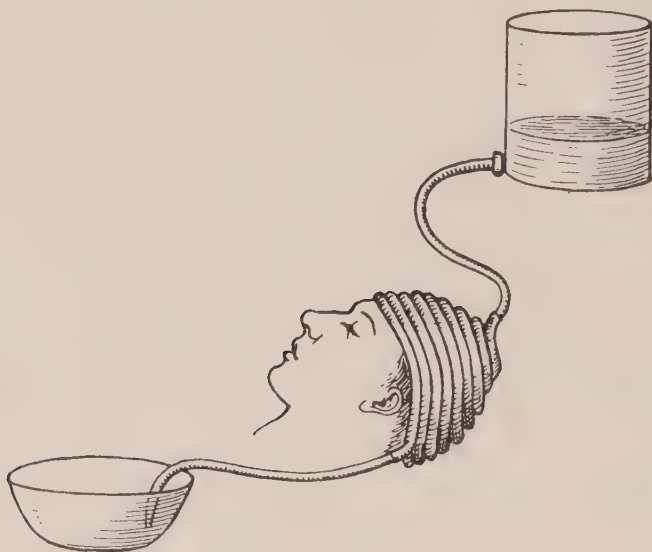


FIG. 30.

placed round the head, chest, or body, and are used to lower the temperature in fever.

Ice Bag.—Ice is broken up into fairly large pieces and placed in the bag until it is half full. The bag (Fig. 31) is usually suspended, so that it touches without pressing upon the affected part. Sometimes a piece of lint is placed between the skin and the bag to absorb the moisture which condenses on the surface of the bag.

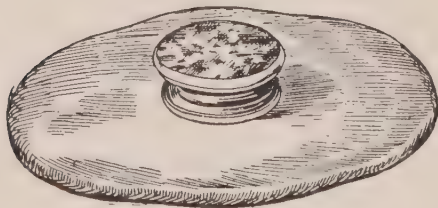


FIG. 31.

Hot Salt Bag.—A soft muslin bag is half filled with salt and placed in the oven between two plates. When hot it is applied and

covered with cotton-wool. It is essential to have more than one bag ready, so as to apply the second one when

the first becomes cool. These bags do not retain their heat very long.

Bran or hops can be prepared and used in the same way.

Dry Pack.—This consists of several hot blankets in which the patient is wrapped for some hours.

Pneumonia Jacket.—A piece of cotton-wool is placed between two layers of soft linen or muslin which have been roughly cut out to fit the front of the chest. The same is done for the back. The edges are lightly quilted and tucked down. One side is sewn up, leaving an opening for the arm, and the other side is fastened by means of tapes.

Hot Bottles.—Hot bottles are made of tin, earthenware, or india-rubber. In an emergency any bottle or stone jar or even a brick may be used. A hot bottle should always be encased in a thick flannel bag. There are three points to be remembered by a nurse. First, that the water must be changed at frequent intervals; secondly, that the bottle should be tested to see that it does not leak; and, thirdly, that it must not be put too near the patient for fear of causing a burn. The last is liable to happen in unconscious patients, children, or adults with a delicate skin, or in patients who have partially or entirely lost their sensation, which may occur in nervous diseases or after anæsthetics.

CHAPTER V

BACTERIOLOGY

THE majority of diseases are now definitely known to be due to the introduction into the system of a microbe (sometimes called a micro-organism), and the symptoms of the disease are the results of the poisons which it forms.

These microbes are exceedingly minute, and are visible only after great magnification by a powerful microscope. In reality they are vegetable cells, which, according to their shape, and the way in which they are aggregated, are classified in the following manner:—

Cocci are round cells. They are often found arranged in pairs, when they are called **diplococci**, sometimes in longer or shorter chains, to which the name **streptococci** is applied, and sometimes collected into a cluster roughly resembling a bunch of grapes, and known as **staphylococci**.

Bacilli are rod-shaped cells. When they are curved they are known as **vibrios** or **comma bacilli**.

Spirilla are cells which have become twisted in alternating directions, so as to resemble a spiral.

Spirochætæ are organisms of a similar shape, which are animal, not vegetable cells.

Some varieties of micro-organisms develop within their interior smaller rounded bodies, known as **spores**.

These actually correspond to the eggs of the organism, which remain indefinitely quiescent if the circum-



FIG. 32.

1. Staphylococcus.
2. Streptococcus.
3. Pneumococcus.

4. Gonococci.
5. Syphilis.
6. Typhoid.

7. Diphtheria.
8. Tubercle.
9. Tetanus.

stances are unfavourable, but which develop into micro-organisms if placed under the conditions of

warmth and food favourable to their growth. Some varieties of bacilli possess the power of spontaneous locomotion, in virtue of little hair-like processes (*flagella*) along their sides or at the ends. Such organisms are said to be *motile* and *ciliated* (cilia = hair).

Culture Media.—When organisms have been obtained from a patient, as, for example, on a swab from the throat, or in pus obtained from an abscess, or in other ways, they are examined immediately under a microscope. At the same time they are placed in tubes—this is known technically as inoculating culture-tubes—containing certain material which acts as a suitable food, so that they multiply rapidly, to form what is called a *culture*, which renders their identification more certain, since cultures are often very characteristic of particular organisms. Such media, or culture media, may consist of agar-agar (prepared from sea-weed), gelatine, broth or bouillon, or blood serum.



FIG. 33.

In addition to receiving a sufficient and suitable food supply, a warm temperature is essential to the growth of organisms, so the cultures thus made are placed in an incubator at a certain constant temperature (usually 37° C.) for twenty-four hours, or longer.

It must be pointed out that micro-organisms are practically ubiquitous. They exist in the atmosphere, except at very high altitudes or in very cold climates, on the surface of all objects, in water, and in the soil. But it must next be realised that the immense majority of organisms are non-pathogenic, that is, incapable of producing disease; and as regards the harmful ones, although their distribution is wide, so that exposure to them is practically constant, their actual danger depends upon the state of health of the person who comes in contact with them.

Infection and Contagion.—For infection to take place, direct contact with a diseased patient is not

essential. Dissemination by the atmosphere is the most prolific cause of the spread of disease, as, for example, when a tuberculous patient spits or coughs, and so distributes myriads of tubercle bacilli in the tiny particles of his sputum, which are carried far and wide to reach a suitable soil. Earth is also a great source of infective danger, in that all excreta, evacuations, &c., teeming with bacteria, eventually find their way there. One of the most dangerous organisms, whose habitat is the soil, is the tetanus bacillus, the bacillus which produces lockjaw. Water, again, becomes contaminated in the same way, owing to the disposal of waste products, and an epidemic of typhoid fever has frequently been traced to an infected water-supply.

The entrance of organisms into the body of a human being may be effected through one of these channels—the skin, the air passages, or the alimentary canal.

Infection takes place through the skin when a person is pricked with an infected instrument, or when organisms gain entrance into a recently-made wound. In addition, the bites of insects, mosquitoes, flies, ticks, and of vermin, themselves infected, result in the transference of disease to the human body, and in this way plague and malaria are spread.

Infection through the alimentary canal is due, of course, to the ingestion of infected food, and in this way tuberculosis, typhoid fever, and scarlet fever have been traced to a particular milk-supply.

The distinction originally drawn between infectious and contagious diseases is too artificial to be of value, and the two words are now used as synonymous, and employed in the case of any disease which can be conveyed from one human being to another, or from an animal to a human being.

When organisms lead to the formation of pus, they are said to be **septic** or **pyogenic** organisms. The commonest of these are staphylococci and streptococci.

It has been stated above that the ill effects produced by bacteria are the result of the poisons (**toxins**) which

they secrete. To combat these toxins, the body develops in its blood a substance which is antagonistic to it, and which may be regarded as neutralising it, much in the same way as an acid neutralises an alkali. This substance is called **anti-toxin**.

When the infection is slight, or if the patient has a relatively high resistance to that particular infection, he is able to manufacture a sufficient quantity of anti-toxin to overcome the poison of the microbe—in other words, he recovers. But if the infection is very severe, and the patient is unable to manufacture sufficient anti-toxin, he is liable to succumb, unless assistance is afforded by the direct introduction of ready-made anti-toxin into the body. A familiar example of such assistance is in the treatment of diphtheria, and as characteristic of the preparation and use of anti-toxins in general we may describe the process.

Organisms of diphtheria are grown in a suitable medium and a culture is obtained. This is separated and filtered. By filtration the bodies of the bacteria are removed, so that the filtrate contains the toxin which they secrete. A small quantity of the toxin is injected into a healthy horse. The animal reacts by manufacturing in its blood diphtheria anti-toxin. Several doses in increasing quantity are next injected in rapid succession. (These injections are very small doses of poison, so that the horse is in no way the worse for the experiment.) In this way the horse's blood develops an enormous quantity of anti-toxin. Blood is now drawn from a vein, and the serum (which contains the anti-toxin) is filtered off and a small quantity of antiseptic is added. The strength is estimated and expressed in *units* as the quantity of diphtheria toxin which a certain amount can neutralise. The anti-toxin is then put up in sealed tubes; each cubic centimetre is known to contain so many thousand units, so that in a case of diphtheria, if we wish to inject, say, 10,000 units, the appropriate quantity is employed.

We have already stated that the great majority of diseases have been definitely shown to be due to a

specific micro-organism. The great advance made in bacteriology of recent years has led to the identification of the organisms of most diseases which are clearly microbic in origin, but a few still remain, *e.g.* measles, which must almost certainly be caused by organisms in the same way as similar diseases, but in which the corresponding organisms have not yet been identified, presumably because they are too minute to be visible even under the most powerful microscope.

Immunity.—The result of infection with certain diseases is that the subject is often protected from future attacks. He is then said to be **immune** to that disease, and such immunity is described as *acquired*, in distinction from *natural* immunity, which is present in certain persons in whom, no matter how constantly they may be exposed to the disease in question, infection never occurs.

Since immunity is artificially acquired as the result of an illness, the principle of vaccination suggested itself as a means of artificial immunisation on a smaller scale. In vaccination a definite number of organisms suitably prepared are injected so that a mild, almost invisible, attack of the disease is induced, as a result of which a certain degree of immunity is conferred.

Until comparatively recently, the term vaccination was employed solely in connection with smallpox. (In actual practice the subject is not inoculated with the virus of smallpox, but with that of cow-pox, a disease sufficiently similar to smallpox to confer immunity to the latter.) Of recent date the application of vaccines has enormously increased, and their employment is rarely absent during the prolonged treatment of any acute infection or of any chronic condition, when the causal organism can be separated and cultivated. For example, vaccines are used in the treatment of boils which are staphylococcal infections, in septicæmia, and in typhoid, cholera, plague, and tuberculosis.

Vaccines.—Having discovered the organism which

is causing the trouble, it is grown in the manner described on p. 70, and when a sufficient quantity has been obtained the microbes are scraped off the medium by means of a platinum loop of wire, and mixed with water containing salt (normal saline). By counting the number of microbes in a drop, the total number present in the solution can be estimated, and it can be ordered in doses of so many million per injection. The micro-organisms are killed by being heated in boiling water, so that they are dead when they are injected into the body.

Vaccines are given for this reason. Supposing a person has a local infection, such as a boil or a catarrh of the nose, then it will be easily understood by the nurse, after reading this chapter, that the blood of the patient in the position of the inflammation will be manufacturing an anti-body to overcome the poison of the microbes. But this manufacture of resisting products is essentially local, and it is obvious that if the whole blood-stream of the patient could be stimulated to produce anti-bodies and carry them to the inflamed area, recovery would take place more quickly. Hypodermic injections of the dead microbes causing the disease are injected into the arm or flank, and these lead to the production of great quantities of anti-bodies, which are carried in the blood to the affected part. Since the microbes are dead, they in themselves cause no dangerous symptoms.

It is much more difficult to explain the rationale of vaccines in cases of septicæmia, where the whole blood-stream is already teeming with microbes, but experience has proved that the subcutaneous tissues are the best part of the human frame to produce anti-bodies, and injections are given more or less on empirical grounds.

Vaccines are not only given because of their curative properties, but also for preventative or prophylactic reasons; thus, if a person is going to a country where typhoid is prevalent, he is injected with two or three

small doses of so many million dead typhoid bacilli, so that his blood will produce a quantity of anti-typhoid substance which will protect him, and prevent him from developing enteric fever.¹

The nurse must carefully prepare the skin for the hypodermic injection, and afterwards watch this area for any pain, redness, or swelling. At the same time the temperature and pulse must be taken four-hourly, and any symptom such as headache, vomiting, or malaise must be carefully noted. In some cases nothing unusual occurs, but in others the patient may be feverish and unwell for twenty-four hours, and take two or three days to feel quite normal again.

Stock Vaccines.—When the physician knows the variety of organism causing the trouble, he sometimes will inject a vaccine made from a culture of the same organism which he has already in stock, during the interval that has to elapse while the patient's own microbe is growing on a culture medium. The former is known as a stock vaccine, and the latter as an autogenous vaccine.

Tuberculin is the name given to an emulsion of tubercle bacilli. According to the method in which this emulsion is prepared several varieties are described, two of which are in very common usage, viz. "Old Tuberculin" and "New Tuberculin," or "T. R." (For further details see "Tuberculin Treatment," p. 161.) The former is mainly employed in diagnosis (see below); the latter in the treatment of tuberculosis, that is, in the true vaccine sense.

Tuberculin Tests.—There are several ways of testing whether a patient is tuberculous or not. Briefly, they all depend upon the reaction which a patient with tuber-

¹ After inoculation the patient should keep out of the sun, and avoid taking alcohol and exercise. Aspirin will relieve the pain. The inoculation protects for about two years.

culosis manifests towards the injections into him of the toxins of the tubercle bacillus.

Calmette's Test consisted in dropping the emulsion of tubercle bacilli into an eye. In a positive reaction conjunctivitis occurred, but the test is by no means free from danger of injuring the eye, and it has been abandoned.

Von Moro's Test, which is still in vogue, consists in rubbing a mixture of lanoline and tuberculin into the skin over an area about the size of a halfpenny. As a control, lanoline only is rubbed similarly into the corresponding area of skin on the opposite side of the body. In a positive reaction small red spots appear in the neighbourhood of the former inunction after two or three days.

Von Pirquet's Test is perhaps the test most frequently employed. The upper arm is scratched (as if for vaccination) in four places, and into each spot is rubbed a solution of tuberculin, prepared so that its strength is proportionately weaker for each spot. After three or four days, small blisters appear when tuberculosis is present, and to some extent the degree of intensity of infection can be estimated from the degree of dilution which is still able to cause a reaction.

Hypodermic Injection of tuberculin is, on the whole, the most reliable of all methods of diagnosis.

Widal's Test.—This test is performed with the blood of a patient suspected to be suffering from typhoid fever. As will have been gathered by reading the above, the blood of a sufferer from this disease will have undergone certain defensive changes against the typhoid bacillus. If a drop of a suspension of typhoid bacilli is placed on a microscope slide and mixed with a drop of the patient's blood serum, the microbes will be seen to lose their normal activity and to clump (agglutinate) together into one mass owing to the anti-typhoid properties which the serum has acquired. This test will be positive only with the blood of patients who

have typhoid fever, and although not absolute, it is obviously of great diagnostic value.

Wassermann Test.—The details as to the principles of the process and its method of performance are too advanced for a book of this type, and it will be sufficient for the nurse to know that it consists essentially in testing the blood to see whether or no syphilis, either active or latent, but still uncured, is present. As in other tests, the result is stated to be positive when the disease is present and negative when absent.

Method of Collecting Material.

Urine.—In all cases when specimens are required it is necessary to know whether the entire amount of urine passed in twenty-four hours is to be collected. The physician may need only a sample taken at any time, or he may want it taken from a jar containing the entire twenty-four hours' urine well mixed. Urine required for bacteriological examination must be drawn off with a catheter, with strict regard to asepsis. The urinary orifice must be carefully washed, and the catheter should be boiled. In either case it is best to avoid using an antiseptic which may vitiate the examination for organisms. The urine should be allowed to run directly into a sterilised bottle, which is at once corked and labelled. In many cases it will suffice for the urine to be passed direct into a sterilised bottle without a catheter being used.

Fæces or Vomit.—Specimens should be placed in a wide-mouthed jar, which must be securely corked. In the case of fæces, it is advantageous to avoid the presence of urine.

Sputum.—When sputum is required for bacteriological examination, it should be placed in a small sterilised bottle, and securely corked. No antiseptic should be added to it. When collected for other purposes, however, a little weak carbolic acid may be placed in the bottle.

Blood.—To collect a small quantity of blood (*e.g.* for the Widal test), the site selected is washed and dried. The lobe of the ear or a finger are the sites usually employed. The skin is stabbed (not pricked) with a needle, which has been previously sterilised in a flame and allowed to cool. As the blood exudes, an end of a piece of glass tubing, which has been drawn out to a fine point at either end, is placed in it. The blood travels up by means of capillary attraction, and when sufficient has been withdrawn, the ends of the tube are sealed in a flame. When larger quantities of blood are required for special purposes, the doctor will probably thrust the needle of a hypodermic syringe into a vein. In such a case,

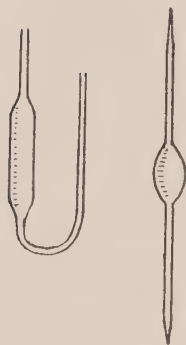


FIG. 34.

the skin in the region of the vein must be carefully prepared for what is actually a minor operation.

Throat Swabs.—A sterilised test-tube, containing a swab of cotton-wool on the end of a metal rod, is always provided for this purpose. It is necessary that the patient should not have had an antiseptic gargle or application for at least two hours previously, and it is advisable to allow him to drink a little boiled water—not milk—immediately before the process; this will cleanse the throat. The open end of the tube is sealed with a plug of cotton-wool, which is withdrawn with the rod and swab. The patient's mouth being opened as widely as possible, and the tongue, if necessary, depressed by a spatula, the swab is wiped over the tonsils, care being taken to prevent its touching anything other than the tonsils. The rod, with its swab, and finally the plug of cotton-wool, are then replaced.



FIG. 35.

The details of disinfecting and sterilisation belong more particularly to surgery than to medicine. The reader is referred, therefore, to the companion *Manual of Surgical Nursing* for instruction on these points.

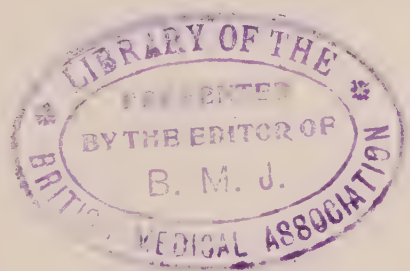
For our present purpose it will be sufficient to give a few definitions.

Antiseptics are drugs which destroy or prevent the growth of micro-organisms.

Disinfectants are substances which destroy bacteria. The best means of disinfection, however, is by heat. For instance, a towel can be rendered quite free from living organisms if it is baked, boiled, or steamed, the process being known as *sterilisation*, and the towel is then said to be sterilised.

It may, perhaps, be added here, that some writers endeavour to draw a distinction between antiseptics and disinfectants from the point of view of their degree of action. Generally speaking, the terms can be used as if synonymous, with special uses which custom has sanctioned. Thus we talk about *disinfecting* a room after scarlet fever by the fumes of sulphur; we use *antiseptics* for preparing the skin for surgical operations, and we *sterilise* instruments by boiling.

Deodorants are substances which destroy unpleasant smells. They are frequently antiseptics, but not necessarily so, and it is well to bear this latter fact in mind.



CHAPTER VI

ACUTE SPECIFIC FEVERS, OR INFECTIOUS DISEASES

MEASLES, scarlet fever, and other diseases of this nature, &c., are called Acute Specific Fevers on account of the acuteness of their onset, their accompaniment by fever, and their undoubted or strongly presumptive causation by a specific micro-organism. A specific micro-organism is a microbe which always causes one particular disease and no other.

Incubation Period.—As is well known, a person who has become infected by any one of these diseases does not immediately display the symptoms of the disease; but between the time of exposure to infection and the manifestation of symptoms an interval elapses, a definite period of time which varies in each disease, during which the virus is incubating, and known, therefore, as the Incubation Period. It is unnecessary for the nurse to remember the incubation period of all fevers, but she should certainly make herself conversant with the commoner ones which are considered in detail below.

Isolation or Infectious Period.—A patient suffering from one of these fevers is said to be infectious during the time when he is still capable of transmitting the disease to others. This period of time is known as the Isolation or Infectious Period. In general terms, this will be until all scabs and scales have been com-

pletely shed, and organisms can no longer be found in the excreta or secretions.

As has been previously stated, there is no difference between the words "infectious" and "contagious." Infection used formerly to mean disease conveyed by means of the air, and contagion by touch, but as we have explained, this distinction is too artificial to be of use.

Quarantine Period.—When a person has been exposed to a patient suffering from an infectious disease, it is often ordered that he be isolated for a certain length of time until it is known that he himself is not going to develop the disease. This is of course to prevent his being a source of danger. The length of time for isolation is usually a day or two longer than the incubation period, and is known as the Quarantine Period.

The failure to observe this precaution is the cause of widespread outbreaks or **epidemics**. When any disease is found in only one district or locality, it is said to be **endemic**. An occasional case occurring here and there is called **sporadic**.

Notification of Infectious Diseases.—The duty of notification may fall on the nurse in attendance, although it is more often done by the doctor or a relative. Failure to comply with this regulation renders her liable to a fine of 40s., unless she can adduce reasonable grounds for supposing that the notification had already been carried out by one or other of the above-mentioned persons.

NOTIFICATION simply means the handing in or posting of a note to the Medical Officer of Health for the district, containing the information that a person is suffering from one of the diseases enumerated below.

The following is a list of the diseases which are notifiable:—

Acute Anterior Poliomyelitis, Cerebro-spinal Meningitis, Cholera, Diphtheria, Enteric Fever, Erysipelas, Puerperal Fever, Relapsing Fever, Scarlet Fever, Smallpox, Tuberculosis, Typhus, and certain other fevers enjoined by local authorities from time to time—*e.g.* chickenpox during an epidemic of smallpox.

Disease.	Incubation Period.	Rash Appears.	Infectious Period.	Quarantine Period.
Chickenpox or Varicella	10-14 days	1st day	When every scab has fallen off	20 days.
Cholera . . .	2-5 days		7 days after diarrhoea ceases	12 days.
Diphtheria . .	2-5 days		4 weeks	12 days.
Dysentery . .	2 days		Varies	7 days.
Influenza . .	3-4 days		3 days after temperature is normal	5 days.
Measles . . .	10-14 days	4th day	14 days after rash appears	16 days.
German Measles	3 weeks	1st or 2nd day	10 days after rash appears	24 days.
Mumps . . .	3 weeks		A fortnight, if swelling has disappeared 1 week	24 days.
Plague	2-8 days		A month	14 days.
Scarlet Fever .	1-7 days	2nd day	When peeling ceases (about 6 weeks)	10 days.
Smallpox or Variola	12 days	3rd day	When scabs have disappeared	16 days.
Typhoid or Enteric	10-14 days	7th-9th day	Indefinite (see p. 93)	3 weeks.
Typhus . . .	5-14 days	5th day	A month	14 days.
Whooping Cough	7-14 days		5 weeks	3 weeks.

As will be seen from the above, the rash in the following six fevers begins respectively on the 1st, 2nd, 3rd, 4th, 5th, and 6th days, and may be easily borne in mind by repeating the mnemonic, "Very sick people

must take ease," the initial letters of the words corresponding, as will be seen, to the fevers **V**aricella, **S**carlet Fever, **S**mall**P**ox, **M**easles, **T**yphus, and **E**nteric.

The same general rules for selecting a sick-room, as given in Chapter II, hold good for Acute Specific Fevers, but particular emphasis must be laid upon the following points: Warmth and ventilation are of paramount importance. No curtains, carpets, rugs, or stuffed sofas and chairs should be permitted in the room. The bed should possess no valance—in fact, only the minimum of furniture should be left, and that of a nature that can be washed. The floor should be wiped over with an antiseptic at least once a day. It is almost invariably the rule to keep a fire burning even during the summer months, not so much to maintain the temperature, as for the destruction of rags, debris, &c. Food, milk, and water should be brought into the room only when required, and should not be allowed to remain there. The usual rules for the cleansing of the mouth and the prevention of bed sores will be found elsewhere. (*Vide* Chapter II.)

The outside of the door of the sick-room is covered by a sheet which has been soaked in weak carbolic or some other antiseptic, not only from the point of view of disinfection, but also as a warning to members of the household. All toys and books which have been used by the patient should subsequently be burnt. All linen and clothes, previous to being sent to the laundry, should be soaked for some hours in carbolic (1 in 20).

All eating and other utensils used by the patient should be kept strictly separate and reserved for his use alone, and before being taken out of the sick-room must be well scalded.

All discharge and excreta should be mixed with carbolic for several hours before being emptied into the water-closet. The utensils after being used must be thoroughly cleansed, and should be kept in the water-closet with a small quantity of disinfectant in them.

Isolation should be insisted upon, and no one should be allowed in the room without special permission from the doctor. All those persons who have been in contact with the patient may have to undergo quarantine and disinfection. When a person has sufficiently recovered from any one of the infectious fevers he is always *carbolised*, or bathed in a disinfectant, before being allowed to leave the room. For this purpose he has several warm baths, and is well scrubbed over with carbolic soap. He then dresses in clothes which have not previously been in the sick-room.

A white linen coat or overall, and a bowl of disinfectant, should be placed outside the room for the doctor, who may also require rubber gloves.

After the patient has left the room it will be necessary to disinfect it. The chimney and keyhole must first be stopped up, and the windows closed and sealed with strips of paper along the edges. Drawers and cupboards should be opened, and then either sulphur can be burnt, allowing 2 lbs. for every 1000 feet of cubic space, or the walls, ceiling, and floor can be sprayed with formalin. The door is locked and the edges are pasted over with strips of paper. After twenty-four hours the room is ventilated, and the floor and paintwork scrubbed with carbolic soap. The ceiling should be re-whitewashed and the walls repapered. The bedclothes, mattress, blankets, garments, &c., must be baked at a temperature of about 200° Cent. Any porous substances such as the above, which are

capable of retaining particles that are contagious, must be baked or destroyed—such substances are known as *Fomites*. This is generally done by the public sanitary authorities, who will also, if required, undertake the disinfecting of the room.

The question of dealing with those who have been in contact with the patient is always an extremely difficult one. The ideal method would be to isolate them until it is certain that they will not develop the disease. This plan is actually carried out in some schools, and here it may be noted that the quarantine period must be reckoned from the time that a person has last been in contact with someone who develops the fever. The latter may possibly be one of the isolated. It is usual to close the school and disinfect the entire building. At the same time an investigation of any possible source of infection is made, such as milk, food, or drains.

The Treatment of Fever in General.—During the stage of fever the diet should be restricted to milk and water, 2 to 4 pints being given in the twenty-four hours. The milk is generally diluted in the proportion of three parts of milk to one of water. After a certain time the flavour of milk may be found to pall, and an acceptable variety can be offered by flavouring it with tea, coffee, chocolate, or cocoa. As an occasional substitute, custard, junket, milk jelly, or an egg beaten up in milk may be used. Some patients are unable to digest milk, and in this event peptonised milk should be tried. Should this also be too heavy, albumen water or whey may be substituted (see chapter on Invalid Cookery). If thirst is very marked, there is not the slightest objection to permitting as much water (per-

haps flavoured) as is desired. In any case, sips of water should be given rather than a long drink, which, in the case of cold water, might chill the stomach. In certain fevers, broth, gravy, beef tea, soups, bovril, &c., may be sanctioned by the doctor.

The following will serve as a guide to the nurse in mapping out a diet chart in fever. Six feeds are given during the day, and the same number at the same time during the night.

8 a.m.,	about 8 ozs. of milk.
10 a.m.,	„ „ „ „ „
12 noon,	„ 5 ozs. „, beef tea.
2 p.m.,	„ 8 ozs. „, milk.
4 p.m.,	„ „ „ „ „
6 p.m.,	„ 5 ozs. „, beef tea.

When the fever has abated, the return to full diet must be very gradual, beginning with custard, bread, and milk, continuing with milk puddings, sago, tapioca, bread and butter, soft-boiled eggs, fish, pounded meat, and so on until a full diet is taken.

As regards the treatment of the fever itself, as a general rule no active measures are needed for a temperature which is below 102° , unless such untoward symptoms as restlessness and delirium occur. But for high temperatures it will be necessary to try sponging, cradling, the wet pack, baths, and Leiter's coils, for details of which the nurse is referred to Chapter IV.

Diaphoretics (drugs which reduce fever) may be ordered by the doctor.

In cases of fever the **heart** is liable to give out, so that it is extremely important that the nurse should keep a careful watch upon the pulse. She will be well advised to see that there is some brandy in readi-

ness in case of emergency. Occasionally the doctor orders champagne, or he may inject strychnine hypodermically. Hot coffee is another useful stimulant; it may have to be injected with brandy into the rectum.

Collapse.—Should collapse occur, which is always a possibility when a crisis takes place, the nurse must have ready hot coffee, which the patient may take by the mouth, or which in bad cases can be injected into the lower bowel. He is wrapped in hot blankets, and hot-water bottles are applied to his extremities. Brandy can be given by the mouth, and the nurse should have ready the hypodermic syringe, in case the doctor wishes to inject strychnine. Should collapse occur from hæmorrhage, as in typhoid fever, the nurse must obey the instructions given on p. 98, where it will be observed that food is dangerous when given by the mouth.

HEADACHE is a troublesome symptom of fever, and it may be relieved by the application of ice, eau-de-Cologne on a handkerchief, or of Leiter's coils.

The oral toilet, avoidance of bed sores, attention to the bowels and bladder, are all of great importance.

FEVERS

The Fevers here considered are arranged, not in any order of importance, but for purposes of convenience, in alphabetical order.

Chickenpox or Varicella.—*The Causal Organism* is unknown. It generally attacks children, and infection is conveyed by the air and by the clothes.

Incubation Period.—Ten to fourteen days after exposure to infection.

Onset.—At the expiration of the incubation period there may be slight pain in the legs or vomiting, or nothing unusual may be noticed.

SIGNS AND SYMPTOMS.—The temperature rises to 100° , but soon falls. It rises again with each crop of spots. The rash appears at first on the chest, and rapidly

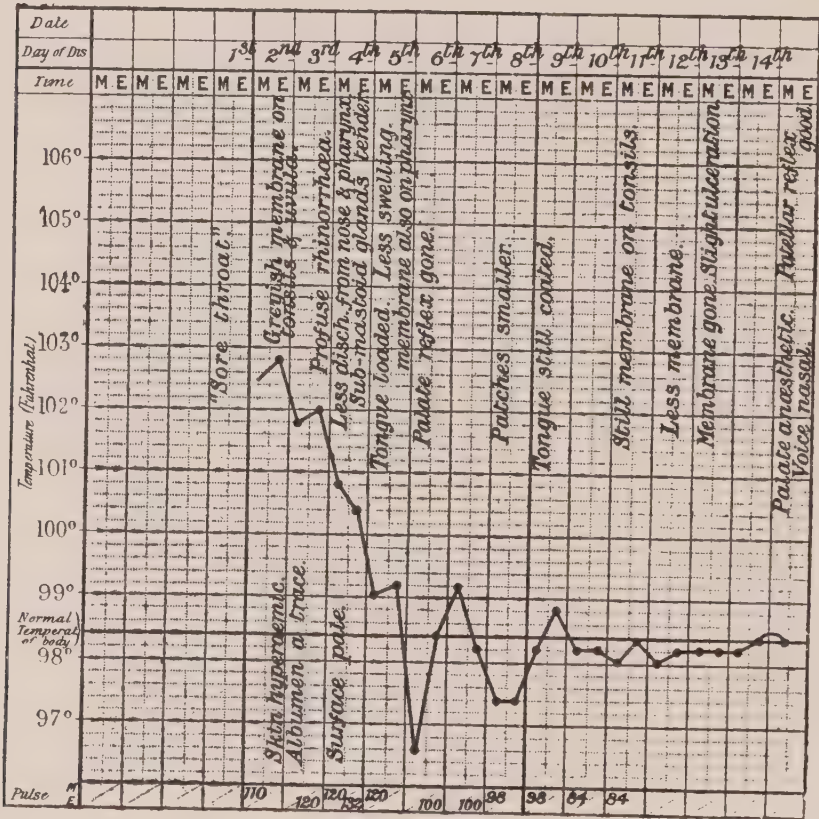


FIG. 36.

spreads over the body. It comes out in crops at intervals during the first three days. At first they are merely raised spots, but in twelve to fourteen hours they become surmounted by a vesicle, which in a few hours is filled with pus. In three or four days they dry in the form of crusts or scabs, which fall off during the second and third weeks, leaving pitted scars.

NURSING.—The general treatment of fevers, with isolation, as given on pp. 85–87, must be followed out. There are no particular drugs for this fever, which is simply allowed to run its course. The spots may require the application of some soothing ointment, such as carbolic, to allay the irritation. Gloves should be put on the patient's hands to prevent him scratching himself.

Isolation Period.—Until all scabs have fallen off.

Quarantine Period.—Twenty days.

Cholera.—*Cause.*—It is due to the comma bacillus, which is carried by contaminated water, or the excreta of patients. This disease usually occurs in Eastern countries.

The Incubation Period is usually two to five days.

SIGNS AND SYMPTOMS.—There is violent diarrhœa, in which the stools look like rice water. The patient soon becomes very collapsed.

NURSING.—It may be necessary to administer ice and brandy by the mouth. Hypodermic injections of morphia and, perhaps, intravenous injections of saline, are also frequently required.

Diphtheria.—*Cause.*—Infection by the diphtheria bacillus is conveyed by other sufferers, or by people infected, although not actually displaying symptoms, by clothes, or in other less frequent ways. (See "Carrier," p. 93). Bad drainage has frequently been considered to cause the disease, but the evidence for this is doubtful. Young children under the age of ten are most frequently attacked, but there is no age at which infection may not occur.

Incubation Period.—The patient first shows signs of illness from two to five days after being in contact with infection.

Onset.—There may be vomiting and nausea; occasionally there is languor, and a general sense of feeling unwell (“malaise”). In an adult the first sign is often a rigor. The equivalent of a rigor in a child is a fit of convulsions.

SIGNS AND SYMPTOMS.—The throat is red and inflamed, the tonsils in particular being affected. Lymphatic glands in the neck may be felt swollen. As a rule the temperature is only moderately raised to about 100–102° F. The pulse is rapid and feeble. Albumen is frequently present in the urine.

In a case which is going to terminate favourably the inflammation subsides, and the temperature and pulse fall to normal on the fourth or fifth day; but in severe cases the tonsils and other structures in the throat will swell to such an extent that signs of asphyxia may occur. The breathing will become more difficult, and the patient obviously distressed in his efforts to draw his breath. He becomes cyanosed or blue in the lips, face, and hands, in which positions a cold perspiration may also be observed. Inspiration is sometimes accompanied by a harsh noise known as *stridor*. The pulse becomes extremely frequent. At first the patient is restless, but later, if no relief is obtained, he becomes drowsy. It is important that the nurse should be familiar with these signs in order that she may summon the doctor on their earliest development. Preparations for tracheotomy should be made, so that this operation can be performed at any moment if required.

Varieties.—In addition to the inflammation occurring in the commonest situation, as described above, it may occur also (1) in the larynx or lower respiratory passages by extension; (2) in the nose; (3) more rarely.

in such situations as the conjunctiva, superficial wounds, vulva, &c.

Complications.—The most important to look for are paralysis of (1) the palate, in which case the voice is of a nasal character, and the food regurgitates through the nose; (2) the muscles of the eye, leading to squinting, and inability to focus objects at different distances; (3) the heart; (4) the diaphragm (the two latter are obviously of extreme danger); (5) the limbs. Any of these paralyses generally occur within a few days to a week after the recovery from the illness, but they may be delayed for six or seven weeks. Recovery from this complication is generally complete, although prolonged perhaps to three months.

NURSING.—The usual lines of management, such as isolation, as given in the introductory paragraphs of this chapter, must be carried out. Whilst attending upon the patient the nurse must be scrupulously careful to avoid any contact with particles ejected by the patient during coughing or expectoration, since the disease is most contagious. As a precaution, a piece of gauze is sometimes fastened over the nose and mouth. She should also gargle frequently with some mild antiseptic, such as glyco-thymoline.

The usual line of treatment is the use of diphtheria antitoxin, injected subcutaneously. The nurse should observe whether improvement follows upon the first injection, as evidenced by relief in breathing, decrease of pain in the throat and neck, greater ease in swallowing, fall of temperature and general amelioration, as it is upon these indications that the doctor will base his opinion as to the necessity for further injections. In addition to this line of treatment, the nurse will probably be expected to paint or spray the throat, for which pro-

cedures it will be necessary to depress the tongue with a spatula. Relief of local symptoms will often be afforded by fomentations to the outside of the throat or the sucking of ice. Although swallowing is difficult, it is important to keep up the strength of the patient by coaxing him to take as much nourishment as

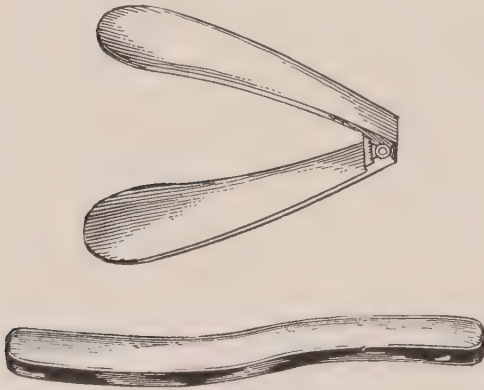


FIG. 37.

possible, generally in a fluid form—especially when fever is present—although it is well to remember that patients with swollen throats sometimes find some semi-solid foods, such as junket, custard, or jellies, easier to swallow than fluids. As soon as the

temperature falls and the swallowing becomes less difficult, the solids in the diet should be increased.

Cases of diphtheria in the early stage must not be left alone for a minute by day or night, for impending asphyxia may develop at any time, and its earliest recognition is of vital importance. The urine must be examined daily for albumen. When the acute stage of the disease is past and the patient is well on the road to recovery, the nurse must be extremely careful not to allow any sudden movement, such as getting up quickly. As has been already stated, paralyses are important complications of diphtheria, and many cases of fainting and sudden death due to paralysis of the heart in these circumstances are on record. When tracheotomy has been performed (for details of which the reader is referred to a surgical text-book),¹ the nurse will have to

¹ *Surgical Nursing*. By Russell Howard. (Edward Arnold.)

spray the tube with a solution of bicarbonate of soda gr. xx to the oz., thrice daily, and she must be prepared with conveniences, bowls and antiseptics, when the doctor removes it after about five days. All excreta and discharges must of course be destroyed or otherwise disposed of with the greatest care in the manner already described in the initial part of this chapter.

Infectious Period.—The patient is usually kept isolated from the rest of the family for four weeks, that is, during the infectious period, provided that at the end of that time no bacteria are found when a swab is taken from the back of the throat. In some cases bacteria remain for a long period of time, although no symptoms are present, and these patients are known as “**Carriers.**”

The Quarantine Period for people who have been in contact with the patient is twelve days—the doctor will generally take swabs from the throats of these to see whether any bacteria are present.

This is a suitable place to remind nurses that the word “croup,” which was once in popular usage, has now been abandoned on account of the indefinite meaning which attaches to it. In previous days the expressions “croup” and “diphtheritic croup” were often employed in doubtful cases, but there is at the present day no justification for this ambiguous word, when a diagnosis can be established with certainty by the microscope.

Dysentery.—Either the bacillus of dysentery or the amœba of dysentery can cause this disease. It is prevalent in the tropics, but occasionally sufferers, having acquired the disease in hot climates, return to Europe uncured.

SIGNS AND SYMPTOMS.—There are abdominal pains and diarrhœa, the stools consisting of blood and mucus. The patient wastes rapidly.

Complications.—Occasionally an abscess may form in the liver.

NURSING.—The patient is put to bed, and the diet should be fluid. Ipecacuanha, given by the mouth, was originally the routine treatment, but more recently great success has attended the hypodermic injection of its active principle, known as emetine. Injection into the rectum of 2–5 pints of various astringent solutions, and the application of poultices to the abdomen are also recommended.

Enteric Fever (Typhoid).—In Enteric Fever the intestine is inflamed, and it derives its name Enteric from the Greek word Enteron, meaning Intestine. From its similarity to typhus fever it is named typhoid.

Cause.—Infection by the typhoid bacillus by means of drinking-water, milk, oysters, water-cress, flies, or, in most cases, through the excretions of persons suffering from the disease. The characteristic of the disease is ulceration of the intestine, but the organism may persist in the body for years (“typhoid carriers”) and, although quite free from symptoms themselves, such people are active sources of danger. Through bad drainage, drinking-water can be contaminated, and so lead to a widespread outbreak or epidemic of the disease.

Incubation Period.—Is usually eight to fourteen days, but it may be less or longer.

Onset.—Is extremely variable. It may begin with a shivering fit, headache, nose bleeding, diarrhœa, aching limbs or lung symptoms. More rarely in the variety which is known as the **latent or ambulatory** type there may be only slight malaise and diarrhœa with, eventually, the development of grave symptoms.

SIGNS AND SYMPTOMS.—The acute symptoms usually last about three weeks. In the first week the temperature mounts gradually in a characteristic manner, rising 2° in the evening and falling 1° in the morning. The pulse is soft but not frequent in proportion to the temperature (about 100). The respirations are increased. The tongue is furred down the centre. There is usually diarrhœa with “pea-soup” stools. There is often headache, and there may be pain in the region of

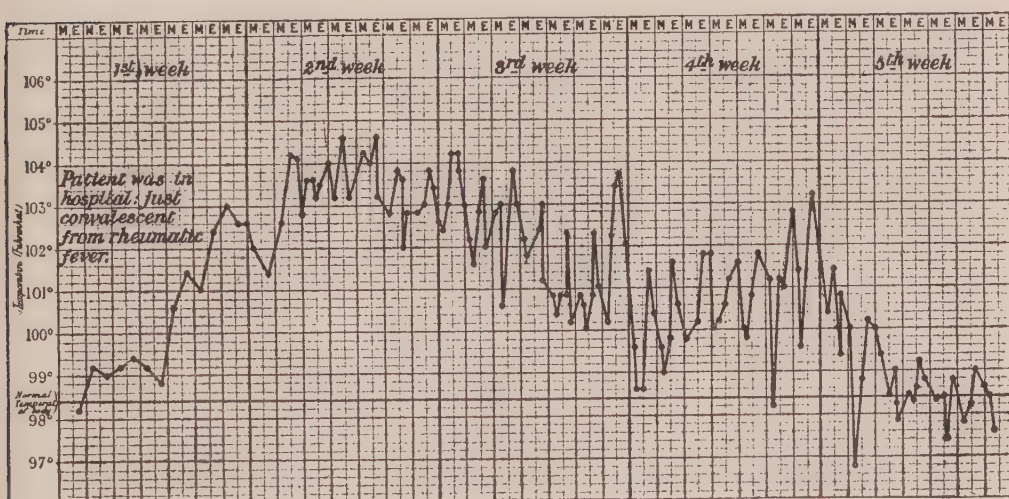


FIG. 38.

the spleen, which is usually enlarged at the end of the first week. The Widal test (see p. 76) will be positive at the end of the first week. In the second week the temperature remains raised at or about 103° or 104° . The pulse is more frequent, the face is flushed, and the eyes are dilated. The tongue is dry and brown. The abdomen is distended and tender. The diarrhœa persists with yellow, offensive stools. The typical rash, which consists of rose-pink, slightly raised spots, appears in crops between the seventh and twelfth day, first on

the abdomen, and later upon the upper arms, back, chest, and thighs. Each spot is visible for about three days, gradually fading away, and crops may appear up to the end of the third week. In severe cases, during this week the patient may become delirious, drowsy, and cyanosed; twitchings of the muscles and plucking at the bed clothes may occur, and incontinence of fæces and urine may be present. This is known as the "**typhoid state.**" The pulse is very feeble and the breathing becomes Cheyne Stokes in character (see p. 142). In the third week the temperature begins to fall gradually, and the diarrhœa and other symptoms improve. In the fourth week, convalescence commences in normal cases, but in severe cases the condition of the third week persists during the fourth or fifth week.

During convalescence the temperature may rise from many causes, *e.g.* from constipation, the too early administration of food, the presence of complications or a relapse. A relapse is usually denoted by a return of symptoms, viz. the typical rash, diarrhœa, temperature, and an enlargement of the spleen.

Complications.—The complications in typhoid fever are too numerous to mention exhaustively. Two are of paramount importance, and generally occur after the tenth day of the disease.

(1) *Hæmorrhage from the Ulcers.*—The nurse should suspect that an extensive hæmorrhage has occurred if the temperature falls, the pulse and respirations become rapid, and the patient becomes blanched and cold. The presence of blood in the stools is, of course, an infallible sign.

(2) *Perforation.*—There may be rigors and vomiting, but more often there is abdominal pain and collapse, with a falling temperature. Later, when peritonitis

occurs, fever is present. The abdomen is tender, rigid, and does not move on respiration.

NURSING.—The patient should, of course, be isolated, and in view of the fact that a long illness is inevitable, it is best to place him on a water-bed. A draw-sheet must, in any case, be used.

Three important points for the nurse to remember in this condition are diet, rest, and careful nursing. On no account should the patient be moved or allowed to move unnecessarily. Milk is the only form of food permitted, and of this 2, 3, or 4 pints a day should be given. A quarter of a pint should be administered every two hours, and if it is badly borne it may be first peptonised. Beef tea and broths may be ordered in the place of some of these feeds, but diarrhoea sometimes occurs from their administration, in which case they must be discontinued. The mouth must be kept clean, and, of course, the patient should not be awakened from sleep for his food.

When the patient begins to get better the nurse will have great difficulty in withstanding his desire for food. It will even be necessary to watch that nothing is smuggled in by friends or affectionate relations, who have been coaxed by the patient, or persuaded by him, that such refusal is unreasonable or tyrannical. After the temperature has been normal for ten days, "typhoid bread and milk" is given. This is made by mixing very finely powdered bread with milk. The next article of diet in the scale is custard; later, milk puddings and bread and butter are added, then soft-boiled eggs, pounded fish and pounded chicken, and so, gradually, up to a full diet.

In a straightforward case stimulants are not indicated

but in severe cases the medical attendant will probably order them.

When the temperature is very high, the usual treatment by sponging, &c., will be needed. For diarrhœa, starch and opium enemata, or bismuth and opium by the mouth, are often prescribed. (The patient should, of course, always use a bed-pan.) When constipation occurs at the beginning of the disease, castor oil may be given, but later it is not advisable to give purgatives; and enemata, gently administered, will achieve the desired result. In no disease is it more important to observe the rules of disinfection of excreta, clothes, utensils, &c. The nurse should always observe the stools to see whether undigested curds of milk are being passed, or whether any blood or sloughs are present. If hæmorrhage occurs the patient must be kept absolutely still; towels or cotton-wool are used for the actions of the bowels, and nothing must be administered by the mouth. The patient may be allowed to rinse his mouth out occasionally with water flavoured with lemon. An injection of morphia is usually given, and ice is applied to the abdomen. When the collapse is very marked, it may be necessary to infuse the patient. When perforation takes place an immediate operation is generally indicated, unless the condition of the patient prohibits it.

When convalescence starts, the patient should be allowed to sit up one week after the temperature has become normal. He should on no account resume work until three months have elapsed.

The *Isolation* or *Infectious Period* is indefinite because of the persistence of the organism in the urine and fæces (see "Typhoid carriers" above).

Quarantine Period.—Three weeks after exposure to the infection.

Erysipelas.—Erysipelas generally occurs in chronic alcoholism, liver and kidney disease, or debility. It is very infectious.

SIGNS AND SYMPTOMS.—The affected part, which is usually on the face, is red, swollen, and hot. It begins as a small spot, but quickly spreads with a hard edge. Fever, which may be very high, is present with all its attendant signs.

NURSING.—The condition is serious and must be treated at once. The patient is put to bed, and in view of the possibility of contagion is isolated. The diet is fluid, but the strength is maintained by the administration of stimulants, such as port wine. The fever is treated in the ordinary way. Locally, *lotio plumbi* or a powder may be applied, whilst a serum is not unusually administered.

Influenza.—*Cause.*—The influenza bacillus. It is a highly infectious disease, without special maximum age or sex incidence.

The *Incubation Period* is three to four days.

Onset.—The onset is sudden, with perhaps a shivering fit, severe headache, pains in the back and limbs so that the patient feels as though he had been beaten. There is frequently pain at the back of the eyeballs.

SIGNS AND SYMPTOMS.—The temperature rises to 102° or higher on the first day, and generally drops after two or three days, but, rarely, it may remain up for some time. There are all the other familiar usual accompaniments of fever, such as furred tongue, dry skin, frequent pulse, thirst, and scanty urine. In addition there may be nasal catarrh, redness of the

eyes, and a troublesome cough. The sputum is frothy, abundant, and may contain yellowish green lumps. Occasionally there may be diarrhoea. Nervous disturbances are of very common occurrence. Almost any variety of nervous disease may be present, but the most common are loss of smell, headache, neuralgia, sleeplessness, and great depression. Occasionally marked neurasthenia occurs, and even insanity may result. The convalescence is always slow.

NURSING.—The patient must always rest in bed until the fever and other symptoms have subsided, and he should, of course, be kept indoors until his recovery is complete. If seen early, the patient should be sent to bed after taking a hot bath and a purge. A Dover's powder is sometimes ordered at the very beginning of an attack. Various drugs, such as quinine, salicylate of soda, phenacetin, and aspirin are frequently used. Convalescence demands careful treatment, and a change of climate is particularly advantageous.

Isolation or Infectious Period lasts for three days after the fever has stopped and the catarrh has gone.

Quarantine Period is five days.

Malaria.—*Cause.*—Certain parasites are introduced into the human body by the bite of a mosquito. At one time malaria was common in England, and known by the name of **Ague**, but now it is acquired only in hot climates, *e.g.* South America, India, &c.

SIGNS AND SYMPTOMS.—The patient first feels cold and shivers, then, after an hour or two, the temperature rises to 105° or more. After one to four hours free perspiration occurs, and the patient feels better. More intense forms, such as blackwater fever, when the urine contains blood, are rare.

THE NURSING of malaria is simply a question of keeping the patient in bed and seeing that he is warm during the cold stage, and possibly sponging him during the hot stage. Quinine is the drug administered—it is specific for this disease.

Measles or Morbilli.—*The Causal Organism* has not yet been discovered. Measles generally occurs in epidemics, and nearly always affects the very young. A second attack may occur but it is very rare, that is to say, one attack generally confers immunity.

The *Incubation Period* varies from twelve to fourteen days, but the limits are seven to eighteen days.

Onset.—There may be a shivering fit, convulsions, or vomiting, a feeling of malaise and loss of appetite. The most characteristic early signs are reddened or watery eyes, and running from the nose, in other words, the signs of an acute cold. A cough is frequently a troublesome early sign; the temperature rises to about 102°.

SIGNS AND SYMPTOMS.—The temperature generally falls on the second and third days, but not completely to normal. On the fourth day it rises again, and with the rise the rash appears. It then falls suddenly on or about the sixth or seventh day, when the eruption disappears. As early as the first or second day of the disease small white spots, known as Koplik's spots, may be seen on the mucous membrane of the cheek. The rash consists of blotchy, dark red, raised spots, which tend to coalesce. It appears first at the roots of the hair, especially at the back of the ears, and spreads over the whole body. After it has disappeared, a fine branny powder is sometimes left on the skin.

Complications.—The most frequent complications are affections of the lungs. Bronchitis and tuberculosis may follow. Eye and ear troubles are not infrequent, and in weakly children diarrhœa and gangrene of the cheek or vulva may occur.

NURSING.—The child should be isolated and put to

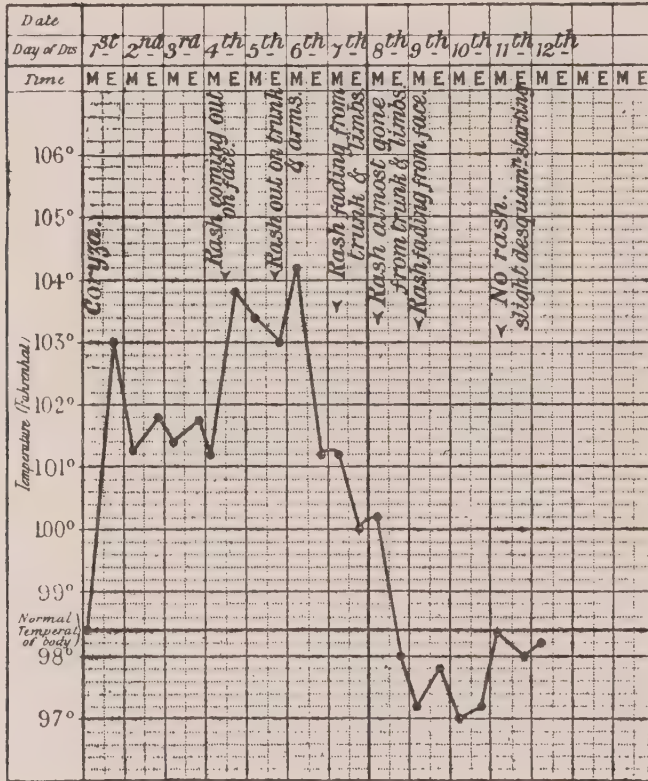


FIG. 39.

bed in a room with a fire, upon which is placed a steam kettle. The latter is to relieve the cough. Since the eyes ache and run, the blinds should be drawn so as to darken the room. The ordinary treatment for fever is carried out, and no special drugs are used for measles. After the temperature has been normal for two or three days, the child is allowed to get up, but it must be con-

fined to the room for at least another ten days. Treatment during convalescence is much more important than during the active stage, since affections of the lungs so frequently follow. Tonics and a change of air are always valuable.

Isolation or Infectious Period is fourteen days from the appearance of the rash.

Quarantine Period is sixteen days after exposure to infection.

German Measles or Rubella.—A *causal* microbe has not been identified. This disease attacks adults as well as children, and has a very long *Incubation Period*, up to seventeen or eighteen days.

SIGNS AND SYMPTOMS.—The onset is not characterised by much constitutional disturbance, but only by slight catarrh and headache. The lymphatic glands in the neck are enlarged, and the temperature is raised to 100° for a few days only. The rash is very similar to that of measles, except that it is pinker in colour, and appears on the first day. There are no Koplik's spots.

NURSING is similar to that of measles. Patients should be kept in bed for five days, and in the house for another five.

Mumps.—*Cause.*—A *causal* microbe is unknown. This disease occurs in children and young adults, but does not attack the very old nor the very young.

The *Incubation Period* is fourteen to twenty-five days.

SIGNS AND SYMPTOMS.—The parotid glands, which are situated close to the ear on either side, swell and become very painful. Any attempt to open the mouth or swallow causes severe pain. They gradually begin to decrease in size after five or six days, and have generally

Plague.—Plague is due to the bacillus pestis, and only occurs in Eastern countries, although a few cases have been reported in the ports of Great Britain.

Incubation Period is two to five days.

SIGNS AND SYMPTOMS.—There is fever with enlarged glands, known as Buboes, in the groin, armpits, and neck. These glands enlarge and suppurate. The lungs may be affected.

NURSING.—Isolation is imperative. Ice may be applied to the buboes, or they may require incision and anti-septic dressings. Anti-plague serum is injected, but the issue is generally fatal.

Rheumatic Fever or Acute Rheumatism.—*Cause.*—Many organisms have been described as the cause of this disease, but this point is still undecided. Rheumatism is more common in the autumn and more prevalent in damp places. After one attack the patient is more susceptible to a second.

When people suffer off and on for years with pains in their joints they may be suffering from Chronic Rheumatism, although it must be remembered that their own diagnosis may be wrong, and they may be suffering from such a disease as Rheumatoid Arthritis (see p. 184). When a patient is suddenly attacked with fever and pain in the joints, as described below, then they are suffering from Acute Rheumatism or Rheumatic Fever, which are synonymous words.

SIGNS AND SYMPTOMS.—The onset is generally sudden, with pains in the joints and frequently a sore throat. The temperature rises to 102° , and remains raised for a varying time, generally ten to fourteen days. Sweating is usual, and the sweat has a peculiarly sour, acid smell. The patient is pale, the tongue is furred. Constipation

is present. The characteristic feature of the disease is its migratory character; redness, tenderness, swelling and pain occur first in one joint and then in another, so that all the joints may be attacked in succession.

Complications.—Many complications, such as rashes or nodules on the skin, or high fever, may occur; but the most important of all are the heart lesions. These are, unfortunately, very common, and for further details

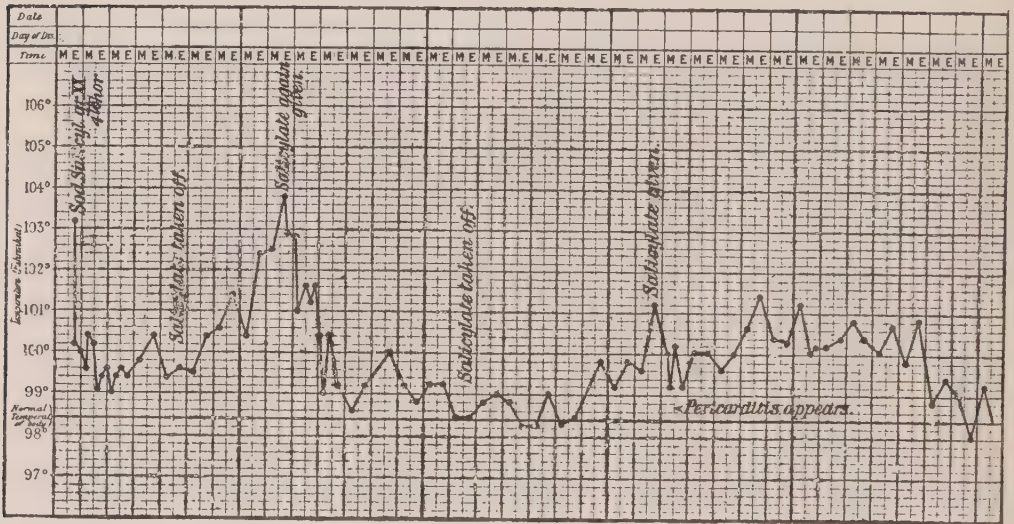


FIG. 41.

the nurse is referred to the chapter on Diseases of the Heart, under the sections "Pericarditis," "Myocarditis," and "Endocarditis."

In children the joint affections and the fever may be very slight, but the heart is very commonly affected, and nervous symptoms are prominent. The prognosis, or future prospect, is always grave. In adults the joint signs and temperature are severe, whilst cardiac lesions and nodules are less frequently encountered.

NURSING.—The patient should be at once put to bed

and kept warm. The diet should consist entirely of milk, oatmeal water, barley water, and soda water. No beef tea, broths, soups, or anything made from meat should be allowed. The drugs most frequently administered are salicylate of soda and aspirin.

The nurse should watch carefully for any signs of over-dosage or intolerance of these drugs (*see* p. 37).

When the fever is high, it should be treated by cradling, sponging, and perhaps wet packs. Locally, the joints should be immobilised and wrapped in hot cloths.

Scarlet Fever or Scarlatina.—Scarlet fever and scarlatina are synonymous words, and the popular belief that scarlatina is a milder variety is erroneous.

Cause.—This disease, the microbe for which has not yet been discovered, can be conveyed by the breath or the secretions of sufferers. Epidemics can arise through the contamination of milk.

Incubation Period varies from one to seven days.

SIGNS AND SYMPTOMS.—The onset is generally sudden, with a shivering fit and vomiting, followed by pains in the limbs, a sore throat, and occasionally diarrhoea. The temperature rises on the first day to over 100° , remains raised for four or five days, and then falls gradually, reaching normal in from eight to ten days from the onset. The pulse is very frequent, about 160 per minute. The throat symptoms may be of an extremely serious character. The tongue is at first furred. After a day or two the small papillæ protrude through the fur, giving the appearance of what is known as the “white strawberry” tongue. On the fourth day the fur has disappeared, leaving the “red strawberry or raspberry” tongue. The rash first appears on the second

day at the sides of the neck, and quickly spreads all over the body. In appearance it consists of red spots on a deep flush. The face is always flushed, but the area round the mouth is white ("circum-oral pallor"). The rash begins to fade about the fourth or fifth day, but it may persist longer. With its disappearance peel-

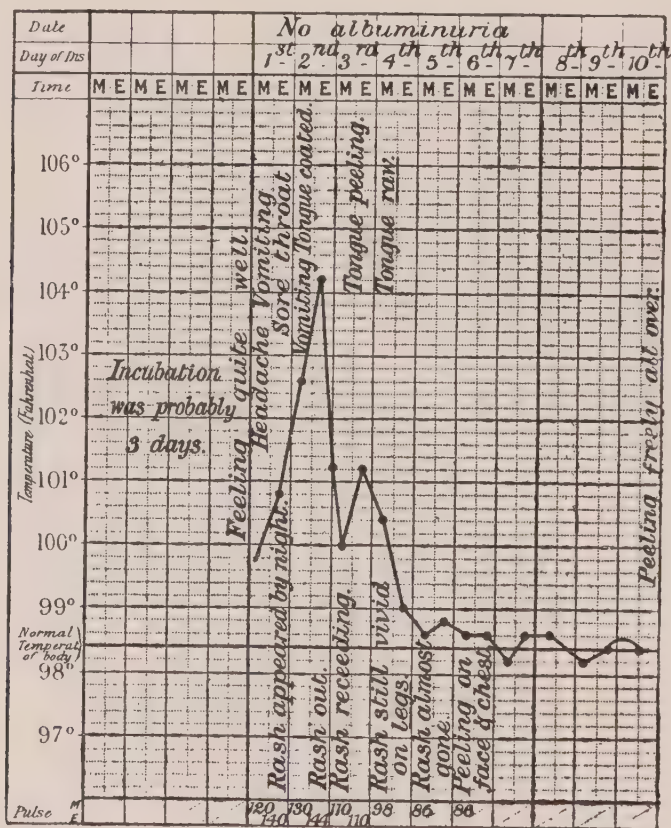


FIG. 42.

ing commences on the face, extending at the end of the first week to the chest and inner sides of the arms and legs, to be complete by the end of the fourth week, except for the palms and soles. In any case all flakes have peeled off by the end of six weeks. A second attack of scarlet fever is rare.

Varieties.—There may be severe hæmorrhages and death within two or three days in what is known as “Malignant Scarlatina.” “Scarlatina Anginosa” is the term applied to those cases with severe throat symptoms. There may be a latent, mild, or abortive form of scarlet fever in which the symptoms are slight, and such cases are only discovered during epidemics, when they occur in houses where scarlet fever is present.

Complications.—In addition to severe ulceration of the throat and inflammation of the ear, bronchitis, endocarditis, &c., may follow, but the two most important complications are rheumatism, which may occur during the first or second week, and nephritis, which develops between the tenth and twenty-first day.

NURSING.—The usual treatment of fevers, as given in the beginning of this chapter, must be carried out. The diet should consist of milk, and foods made with milk, such as arrowroot, sago, and rice. In view of the possibility of nephritis, no beef tea, broths, or anything made from meat should be administered. Its occurrence is indicated by the presence of albumen in the urine, which the nurse should test daily.

No special drug treatment is required for scarlet fever; a cooling mixture will be administered. The patient is kept in bed as long as the temperature is raised. The throat is treated as in tonsillitis, which see.

The *Isolation* or *Infectious Period* lasts until desquamation or peeling is complete. It is never less than six weeks, and then is only considered to have terminated if there is no sore throat, albuminuria, or discharge from the ears.

The *Quarantine Period* is ten days.

When sufferers from scarlet fever return home from

isolation and infect their relations, they are known as "*Return Cases*."

Smallpox or Variola.—*Cause*.—The causal organism is unknown. It attacks both sexes at any age. Infection is carried by the air, by clothes, or by persons who have been in contact with sufferers.

The *Incubation Period* is usually twelve days.

Onset.—This is marked by convulsions in children, and a shivering fit in adults.

SIGNS AND SYMPTOMS.—There is severe frontal headache, accompanied by pains in the back and vomiting. The temperature rises on the first day to 103° or 104° , and remains up until the third day, when it falls as the rash appears, to rise again when the rash becomes pustular, and remains up for three, six, or nine more days, after which it falls gradually, to reach the normal level by the eleventh to the fifteenth day.

The typical rash begins to appear on the third day, first on the forehead and wrists, and then gradually spreading all over the body, being found in the mouth as well. At first it takes the form of small spots, but after three days these become surmounted by a small vesicle containing a clear fluid. After an interval of three more days (*i.e.* by the ninth day) these vesicles become filled with pus. On the twelfth day the spots begin to dry up, and the scabs fall off at the end of three weeks, leaving a scar. Previous to the appearance of the typical rash there may be transient rashes in the first few days, which simulate scarlatina or measles. They disappear as the true rash comes out.

Varieties.—According as to whether the spots remain separate or run together, the eruption is sometimes described as *discrete* or *confluent*. The most

serious variety is the hæmorrhagic variety, in which hæmorrhage occurs all over the body. It is inevitably fatal.

The complications are too numerous to mention.

NURSING.—In no disease are isolation and disinfection more important. Since the spots are found all over the scalp, it is imperative to shave the head. It

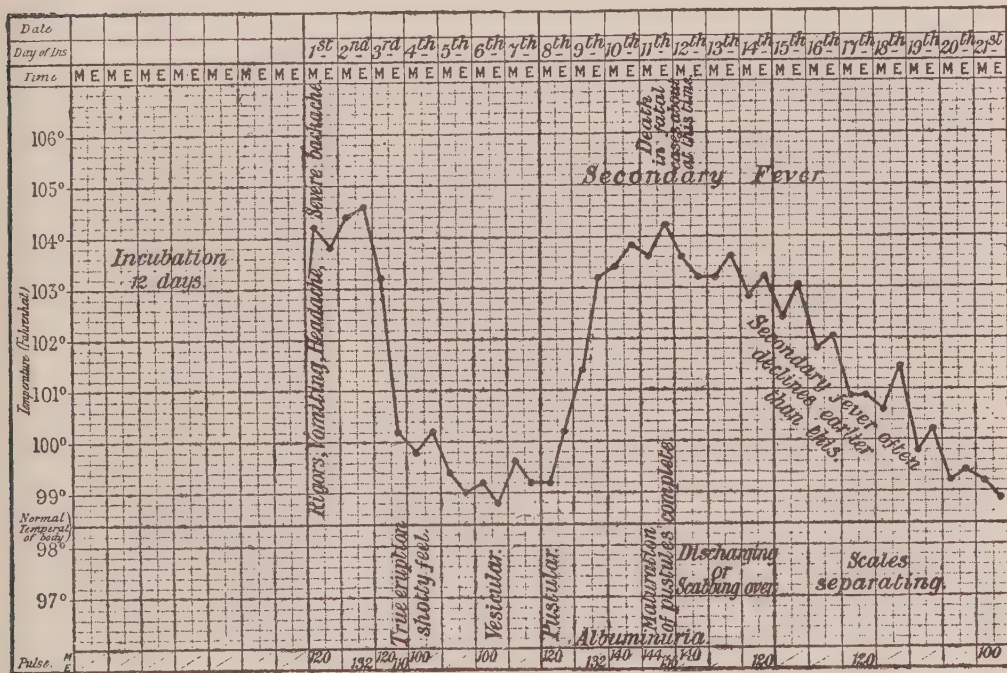


FIG. 43.

may be necessary to inject morphia for the pains in the back. These pains generally disappear when the rash comes out. It is important that the patient should not scratch the spots, which may be intensely irritating, or disfiguration from scarring may occur. To alleviate the itching, carbolic ointment, cocaine ointment, glycerine, or vaseline may be applied. During the pus-

tular stage it is frequently necessary to administer stimulants.

The *Isolation* or *Infectious Period* lasts until every scab has disappeared.

The *Quarantine Period* lasts sixteen days after exposure to infection.

Tetanus.—This disease, which is sometimes called lockjaw, is caused by the bacillus tetani. Owing to this organism existing in the soil, gardeners are frequently attacked by infection of a wound, or a small cut.

Incubation Period is generally under ten days.

SIGNS AND SYMPTOMS.—Stiffness of the muscles round the jaw is an early sign, but eventually spasms occur in which all the muscles of the limbs and trunk are temporarily stiffened. It is exceedingly dangerous, and death from exhaustion ensues.

NURSING.—The patient is put to bed in a darkened quiet room. The wound is treated with antiseptics. Anti-tetanic serum is injected, nasal feeding may be necessary, and in some cases chloroform has to be given to relax the spasms.

Typhus.—Typhus is most contagious, and more nurses and doctors have died from attending this fever than any other. It used to be common in England, but it is now exceedingly rare.

Incubation Period is five to fourteen days.

SIGNS AND SYMPTOMS.—The temperature rises on the first day, and after keeping up, falls by crisis on the fourteenth. A dusky mottled rash appears on the fifth day, and disappears with the fever. All the usual signs of fever are present, and a condition similar to the “typhoid state” is often observed.

NURSING is similar to that of typhoid fever.

Infectious Period is up to four weeks.

Quarantine Period is a fortnight.

Vaccination.—It has been found that when human beings are inoculated with the discharge of cowpox—a disease occurring among cows—there is produced a mild, localised form of this disease, which prevents the patient being attacked by smallpox.

Vaccine is the term applied to the lymph taken from a calf and put in glycerine. This is the material used when a person is vaccinated. It should be noted that the word “vaccine,” as used nowadays, applies not only to the substance used for inoculating against smallpox, but has a much wider usage (see p. 75).

Vaccination is generally performed on the upper arm, but the calf is often selected in the case of girls. The time usually chosen for vaccination is at three months of age, but the operation is postponed if the child is in ill-health or is suffering from a skin disease. Vaccination performed on a baby does not protect for the remainder of the life, but it is advisable to repeat the inoculation between ten and fifteen years of age, and whenever an epidemic occurs.

There is, even at the present day, an enormous amount of discussion as to whether vaccination is of use or not, but no one who has studied the question impartially can have any doubt as to its value, or even necessity. The risks as compared with the value, are infinitesimally small.

RESULTS OF VACCINATION.—On the third day after vaccination has been performed, as the spot at the site of inoculation appears, the child becomes restless and irritable. The temperature becomes slightly raised,

and remains so until the ninth day. On the sixth day the spot is surmounted by a vesicle, which on the ninth day is found to contain pus. This begins to dry on the twelfth day, and the scab falls off by the end of three weeks, leaving a red scar, which eventually becomes white.

NURSING.—A pad of antiseptic lint such as boracic should be placed over the spots, and held in position by pieces of strapping. Small basket-shields can be obtained for adults to wear. The spots are highly infectious, and must not be touched. Many people tie a piece of red ribbon round the sleeve of the affected arm to warn their friends not to touch it.

Whooping-cough or Pertussis.—*Cause.*—It is due to a bacillus, and may occur at any age, but more usually in children and young adults. Epidemics are most common in the winter or spring. A second attack never occurs.

The *Incubation Period* is seven to nineteen days.

SIGNS AND SYMPTOMS.—During the first week of the disease the child is troubled by a bad cough; the temperature is raised, but the characteristic whoop does not occur, so that it is impossible to diagnose the condition from bronchitis, and in many cases it may be mistaken for the early stage of measles. After about seven to ten days the cough becomes more paroxysmal in character, that is to say, at irregular intervals a fit of coughing develops, which continues for a long time, during which the child gets more and more cyanosed, until finally with the intake of breath a loud noise known as the “whoop” is uttered. The child may vomit, and occasionally hæmorrhage occurs from the lungs, and a sublingual ulcer—which means an ulcer under

the tongue—is very common; but the temperature, which was raised during the first part of the illness, now becomes normal. The eyes are puffy.

Complications.—Bronchitis, tuberculosis, enlarged glands, occasionally hæmorrhage.

NURSING.—Isolation, which at one time was not insisted upon, is now rightly considered to be most important. The patient must avoid all changes of temperature, and for this purpose he should be kept in a warm and well-ventilated room. In view of the vomiting and the cough, the strength of the child has especially to be considered; to accomplish this, cod-liver oil is given, in addition to a nourishing diet. Occasionally eucalyptus, creosote, or some other disinfectant is placed in the room to medicate the atmosphere. A spray may be ordered for the throat, but the main line of treatment in the way of drugs is the administration of medicine which will tend to stop the spasms. As soon as possible a change of air should be recommended, with the addition of tonics. Occasionally the child may develop the habit of whooping long after the disease has stopped.

The *Isolation* or *Infectious Period* is generally about five weeks from the commencement of the illness, provided that the whoop has disappeared for a fortnight.

Quarantine Period is twenty-one days.

CHAPTER VII

DISEASES OF THE ALIMENTARY CANAL, LIVER, AND KIDNEYS

UNDER this heading many diseases occur in which the treatment is essentially surgical; these, therefore, will not be considered in this book. There are some conditions, however, in which physician and surgeon co-operate. Of this group the more important have been selected and considered, in addition to those conditions which only require medical treatment.

The Organs of Digestion.—Whilst the nurse has before studying medical nursing learnt the anatomy and physiology of the human body, the following brief description of the diagram (Fig. 44) is perhaps permissible in order to remind her of its importance.

When food, either liquid or solid, is taken into the mouth, it passes to the back of the mouth which is called the **pharynx**, and there enters the gullet or **œsophagus**, which lies behind the trachea, and so passes down to the **stomach**. It leaves the stomach by the pyloric opening into the **duodenum**, thence it goes into the **small intestine**, which is about 25 feet in length. From the small intestine the food is carried along the **colon** or large intestine, until finally passing through the **rectum** or lower bowel it is expelled as fæces at the **anus**, which is surrounded by a muscle called the sphincter.

The Mouth contains the teeth, which in the first or milk dentition number 24, and in the adult after the second or permanent dentition, 32. The **tongue** is covered by papillæ or small projections. The **palate** forms the roof of the mouth, and has a small projection hanging from the central posterior portion called the **uvula**. Behind this on either side of the throat can be observed the **tonsils**.

The Stomach.—The nurse needs to be reminded that the word stomach is used popularly when abdomen is really intended. In medicine the stomach only refers to the bag lying beneath the diaphragm, and joined to the œsophagus above and opening by the **pylorus** at the other end into the duodenum.

The Liver is a large organ lying beneath the ribs on the right side of the abdomen. It secretes bile which is stored until wanted in the **gall bladder**, which periodically empties

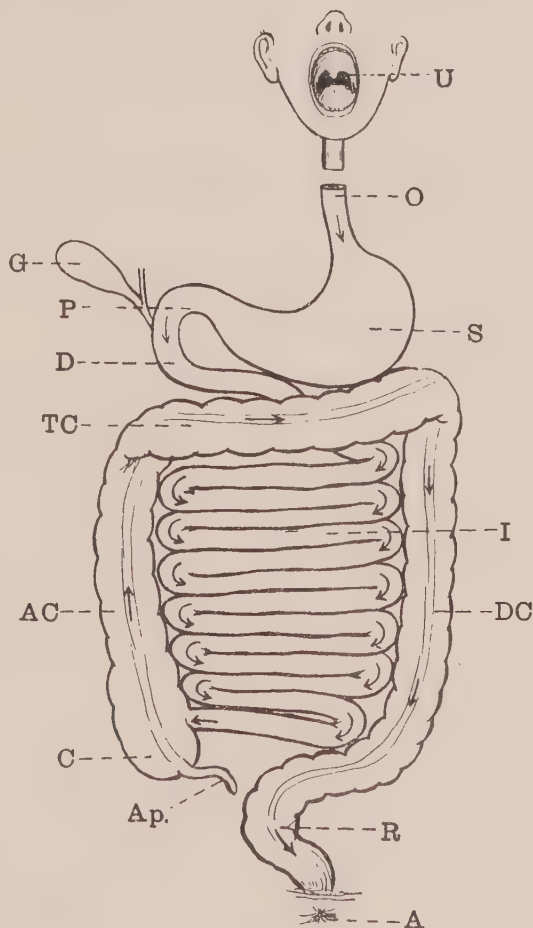


FIG. 44.

U. Uvula. O. Œsophagus. S. Stomach. I. Small Intestine. DC. Descending Colon. AC. Ascending Colon. R. Rectum. A. Anus. G. Gall Bladder. P. Pylorus. D. Duodenum. TC. Transverse Colon. C. Cæcum. Ap. Appendix.

its contents into the intestine by means of the **bile ducts**.

The Pancreas or sweetbread is an organ lying behind the stomach that sends its secretion, which is necessary for digestion, into the intestine by the same opening as the bile ducts.

Cæcum and Appendix.—Where the large intestine joins the small, a pouch or diverticulum called the **cæcum** occurs, and the terminal end of this pouch is the **appendix**.

THE MOUTH

Stomatitis.—Inflammation of the mouth. Various degrees of inflammation may occur; simple, ulcerative, or even gangrenous. When any one of these is present the tongue may also be inflamed (**glossitis**). For further details of stomatitis see Chap. XIII.

In this connection the details of the **oral toilet** may be conveniently considered.

CARE OF THE MOUTH AND TEETH.—Whilst careful attention to the mouth and teeth is essential in all illnesses, it is especially important in those cases where the diet consists entirely of milk. If the patient is too ill to attend to his teeth himself the nurse must undertake this duty. If possible, a tooth-brush should always be used. Otherwise a piece of lint, old linen, or wool wrapped round a thin stick, a pair of forceps, or better still round the forefinger, is dipped into a suitable mouth wash and the teeth are well rubbed from the roots downwards. The tongue and roof of the mouth may be cleansed in the same way. If the patient is unconscious it may be necessary to fix something

between the teeth, such as a spatula or mouthgag, to prevent his biting. Finally, the mouth should be rinsed out with a lemon-juice water, which leaves a refreshing taste. **Cracked lips** should be anointed with mel boracis. The oral toilet should be performed at least twice a day, and every three or four hours in acute cases. The mouth should be rinsed with cold water after all feeds.

The Tongue.—By observing the tongue much valuable information may often be gained. For instance, tremors may be observed, or during paralysis the tongue may be noticed to point to one side. The tongue is usually furred when there is any digestive disturbance, fever or some local affection of the mouth or throat. The appearance of the tongue is described in the various diseases where it is important.

Tonsillitis.—**ACUTE.**—This may be superficial, as a part of inflammation of the mouth, follicular, or suppurative; the last condition being known as quinsy.

Follicular tonsillitis is characterised by enlargement of the tonsils, on the surface of which can be seen *yellow patches*. There is difficulty in breathing and swallowing, and acute pain in the region of the tonsils. The temperature is raised, and the tongue is furred.

NURSING.—This is a contagious condition, and patients should be isolated. Bed is essential. Ice or fomentations may be applied to the neck, and formamint lozenges may be sucked. A gargle is always ordered, and a purge should be given. Potassium chlorate and salicylate of soda are in common use in this condition.

Quinsy or Suppurative Tonsillitis.—In this condition there is an extremely high temperature, 104° or more, great pain in swallowing and breathing, and the neck

in the region of the angle of the jaw may be swollen. Delirium frequently occurs.

NURSING.—The diet should be fluid, although semi-solids, such as jellies or junkets, can be given if they are more easily swallowed. The treatment is the same as for Follicular Tonsillitis. It is often necessary to incise the tonsils unless they burst spontaneously.

Chronic Tonsillitis.—This nearly always occurs in association with adenoids. An operation is so frequently done in this condition that the only treatment the nurse is called upon to perform is to see that the child subsequently carries out regularly certain breathing exercises. See Chap. XVI.

THE STOMACH

Before considering the diseases associated with this organ it may be convenient to mention here what is meant by a bismuth meal and a test meal.

A bismuth meal consists of half a pint of porridge or bread and milk to which 4 oz. of a bismuth salt have been added. After he has swallowed this, the patient is examined by means of X-rays, when the opaque bismuth can be followed in its course down the alimentary tract, and the presence of stricture, dilatation, &c., observed.

A test meal consists of $2\frac{1}{2}$ oz. of dry bread or toast and 10 oz. of water or weak tea without milk or sugar. There are many varieties of test meals, but the above is the one in most common use. It is administered to a fasting patient, and is, therefore, preferably given before breakfast. After remaining in the stomach for an hour it is removed by means of an **evacuator or stomach**

pump. The **evacuator** is much the more convenient form, and the one in common use is figured in the accompanying diagram (Fig. 45). The object of a test meal is to ascertain to what extent digestion has taken place and the nature of the digestive fluids present.

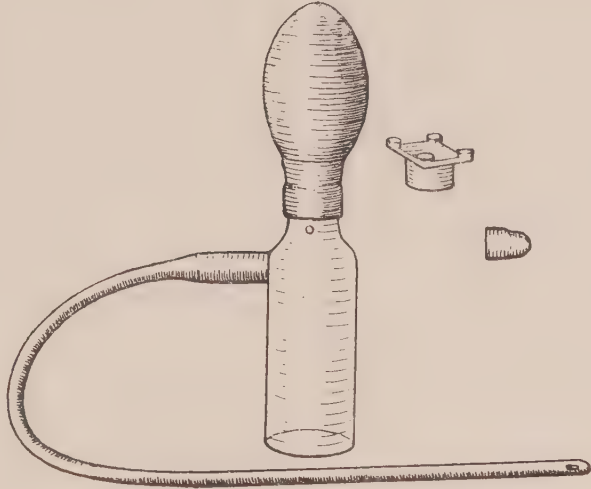


FIG. 45.

Dyspepsia is an alternative word for indigestion, and is used whenever discomfort or pain during the process of digestion is present. It most frequently occurs when there is some lesion, such as an ulcer or new growth of the stomach. But it may be observed without any lesion in the stomach, as the result of taking improper food or an excessive quantity of suitable food, in general exhaustion, and in certain nervous conditions.

The treatment in the acute form is similar to that for mild attacks of acute gastritis, and in the chronic form for mild attacks of chronic gastritis.

Gastritis.—**ACUTE.**—Occurs as the result of errors of diet or drink, in acute specific fevers, and in poisoning.

SIGNS AND SYMPTOMS.—Vomiting is almost invariably present. There is a feeling of fullness in the stomach, and often severe pain. The tongue is dry, headache is present, and constipation or diarrhoea may occur.

NURSING.—The first essential is to give the stomach as much rest as possible, and for this reason food should

be withheld, or only a small amount of milk, soda, or ice may be given by the mouth. Drugs are administered to stop the pain and vomiting, for which purpose a bismuth mixture, containing a little opium, is generally ordered. Diarrhœa and constipation will require appropriate treatment. In all cases treatment of the cause is of paramount importance.

Chronic Gastritis.—This can result from improper diet, bad teeth, too rapid eating or irregular meals. It also occurs in such varied conditions as anæmia, phthisis, gout, Bright's disease, heart disease, cirrhosis, and in ulcerated or dilated stomach.

SIGNS AND SYMPTOMS.—Pain in the region of the stomach or between the shoulder blades. When the pain occurs in the region of the stomach it is known as *Heartburn*. Nausea and vomiting are often present. *Waterbrash*, a condition in which a gush of fluid into the mouth occurs, is occasionally observed. Flatulence is usual. The tongue is furred, and the breath is foul. The appetite is capricious, and constipation is present. Headache, specks before the eyes, giddiness, irritability, and depression at one time or another are complained of. The patient has a sallow complexion, and is liable to frequent skin eruptions.

NURSING.—The most important consideration is the food, and great difficulty will be found in mapping out a diet suitable to each individual case. Naturally certain articles are absolutely forbidden, *e.g.* pork, veal, game, pastry, carrots and turnips. The following dietary will serve as a guide, but those items which the patient has found to be indigestible in his case should be withheld, whilst he may add any that he has found to agree with him, for there exists remarkable variability in

the digestive capacity and peculiarities of different individuals.

Allowed.—Clear soups, oysters, fish (sole, whiting, &c.), chicken, lamb, tongue, sweetbreads, game, eggs, farinaceous foods, such as rice, sago, tapioca, unless there is acid fermentation, spinach, young green vegetables, mashed potatoes, junket, custards, ripe fruit in moderation, toast, stale bread, water, milk, cocoa, and a little coffee.

Forbidden.—All fats except butter, which may be taken in small amounts, rich soups, all fried and greasy dishes, hashes, stews, twice-cooked foods, smoked or salted meats, pork, ham, bacon, veal, goose, duck, potted meats, salmon, mackerel, mullet, eels, lobsters, crabs, salted fish, porridge, brown bread, pastry, uncooked fruit, nuts, salads, radishes, cresses, mushrooms, carrots, turnips, parsnips, pickles, sauces, pepper, cheese, alcohol, tea, ice, cream vinegar, lemons.

Ulcer of the Stomach.—Gastric ulcer may be either acute, when it usually occurs in young women between the ages of fifteen and thirty, and is associated with anæmia and constipation, or chronic, when it occurs in middle-aged men who have been addicted to alcohol.

SIGNS AND SYMPTOMS.—The tongue is generally clean. There may be a feeling of nausea, and vomiting may occur. After taking food there is pain in the upper part of the abdomen, underneath the ribs, and often between the shoulders. This pain occurs within a few minutes to one hour after taking food. The two most important complications occurring in connection with Gastric Ulcer are *Hamatemesis*, which means the vomiting of blood or *perforation*, when the ulcer bursts into the abdominal cavity and *Peritonitis* ensues.

NURSING.—When it is definitely known that the patient has a gastric ulcer she should be put to bed and made to rest for at least three weeks. If there is severe pain and vomiting, the only food given should be by the rectum. As soon as possible milk should be given by the mouth in amounts of 1–2 oz. every two hours. When milk is not borne well in this manner it should be diluted with lime or soda water, or peptonised (see Chapter on Sickroom Cookery). The amount of milk is gradually increased, until three pints are taken daily. During the third week ground rice, arrowroot, beef tea, broths, and soups are given in addition to the milk, which they gradually replace. At the end of three weeks the patient is allowed to get up and to take fish, pounded meat and chicken, but vegetables, fruit, and pastry are not permitted. Recently another line of treatment for gastric ulcer has been introduced with such satisfactory results that the details given below will prove of use.

LENHARTZ'S TREATMENT.—The patient is made to rest for the same length of time as in the ordinary treatment. An ice bag is placed over the stomach. Hourly feeds, which are iced, are given from 7 A.M. until 9 in the evening. On the first day a beaten-up egg and 6 or 8 oz. of milk are given in the twenty-four hours, the egg and the milk being administered alternately every hour in small doses. Each day an egg and 4 oz. of milk are added, until the patient takes two pints of milk and eight eggs per day. After three days sugar is added, and after ten, rice, raw scraped beef, minced chicken, and softened bread are given in addition, and a gradual return to full diet is arranged.

It may be necessary to administer bismuth for the vomiting. Constipation is in the meantime treated by means of enemata, or some such purge as paraffin.

Hæmatemesis is treated by absolute rest on the back. All food by the mouth is withheld, ice alone being given. It is very important to keep the mouth clean by means of antiseptics. An ice bag is placed over the stomach. A hypodermic injection of morphia is administered. After twelve hours, rectal feeding is started. For this purpose the lower bowel should be washed out with a pint of warm water before each injection, and in addition once a day with soap and water. There are many varieties of nutrient enemata in use (see Chap. III). Provided no hæmorrhage has occurred after five days, whey in doses of a teaspoonful may be given two-hourly, then after three weeks milk is gradually introduced with the addition of a bismuth mixture.

Perforation, of course, needs immediate surgical interference.

Ulcer of the Duodenum.—Generally occurs in men. The onset of pain is two or three hours after taking food, and is relieved by food. Hæmatemesis is rare, but melæna (altered blood in the stools) is frequent.

Cancer of the Stomach.—This generally occurs in middle-aged men.

SIGNS AND SYMPTOMS.—Dyspepsia occurring for the first time at middle-age is always suggestive of cancer. Typically there will be pain, vomiting such as occurs in chronic gastritis, and in addition great wasting is present. The diagnosis is assisted by the test and bismuth meals, and by X-rays examination. It is invariably fatal within two years.

Dilated Stomach.—In this condition the patient is very depressed and becomes extremely thin. All the signs of chronic gastritis are present, but the character-

istic feature is that the vomit will contain food which has been taken many days previously. The stomach may be observed bulging in the abdomen.

NURSING.—When surgical treatment is not advised, the diet should be regulated so that the fluids are small in quantity, and only taken between meals. Food should be similarly taken in small quantities at short intervals. Vegetables, sugar, pastry, and milk are generally not borne well; lean meat, poultry, and fish suit best. Tonics are given, and the bowels should be kept open regularly. Massage of the abdomen is sometimes undertaken, but washing out the stomach (**lavage**) is by far the best line of treatment, and is generally performed daily before breakfast with hot water, containing a teaspoonful and a half of soda to the pint (see p. 45). At first this is performed daily, then twice a week, and later every other week. The patient will soon get accustomed to the process, and can learn to pass the tube himself. After lavage, the patient should rest for an hour.

Diarrhœa.—By diarrhœa is always understood increased frequency, increased fluidity, and increased quantity of the stools. The loss of fluid may result in severe collapse.

Just as in the case of dyspepsia, diarrhœa may be due either to some lesion in the gut, or apart from this, to some temporary cause, such as improper food, purges, changes of temperature, or nervous influences. The lesions in the gut referred to occur of course in typhoid, tubercle, cholera, cancer, &c. For diarrhœa in children see Chap. XIII.

The general treatment consists of rest in bed and warmth. The cause of the condition should be the

first consideration, and if something irritating is still present a laxative may be necessary, followed by bismuth and opium by the mouth, whilst in severe cases a starch and opium enema may be administered. The diet should consist of beef tea, white soups, boiled or poached eggs, underdone fresh beef, boiled mutton, sweetbreads, beef juice, dry bread, toast, rusks, rice, tapioca, arrowroot, sago, tea, toast water, peptonised milk.

Articles to be avoided are: New bread, porridge, rich foods, vegetables, food fried in butter, salt meats, veal, pork, brown bread, fruit and nuts, sweet dishes, ices, beer, stout, or wine.

Constipation.—The causes of constipation are very varied. It may be due to sedentary habits or inattention to calls to defæcate; to too dry a diet or insufficient fluid in the diet; to frequent taking of certain drugs, especially opium. It also occurs when the abdominal muscles are weak, or in anæmia, hysteria, acute specific fevers, chronic affections of the liver, stomach, and intestines, some nervous diseases, and it is present, of course, in intestinal obstruction.

SIGNS AND SYMPTOMS.—Furred tongue, foul breath, headache, and a languid depressed feeling. A sense of fullness may be experienced, and piles may be present. The bowels are opened irregularly and infrequently.

NURSING.—The habit of going regularly to the water-closet should be cultivated. Regular and moderate exercise should be insisted upon. The diet should contain a liberal quantity of vegetables, fruit, and plenty of fluid, at least 3 pints in the twenty-four hours, and it is advisable to include a glass of water before breakfast and another before going to bed.

The patient may take: Meat broths, soups, boiled fish, oysters, fresh tender meat, poultry and game, spinach, cabbage, cauliflower, sprouts, asparagus, salad, potatoes, green peas, beans, stewed prunes, apples, figs, ripe fruits, jam, marmalade, plain puddings, cream, porridge, stale bread, brown bread with plenty of butter, crusts, pure water hot or cold, coffee, cocoa, orange juice, light wines.

He must not take: Smoked or preserved fish, salt or potted meats, pork, eggs, beans (except green ones), new bread, pastry, arrowroot, sago, tapioca, rice, milk, tea, cheese, nuts, alcohol.

As regards drug treatment, it is advisable to avoid the habitual use of purgatives as far as possible, and it is well to find out from the patients what drug they have been in the habit of taking, for they will know far better than the nurse what particularly suits them.

Amongst those in most common use are the following: Mineral waters (Apenta, Carlsbad, Hunyadi Janos, Rubinat), castor oil, liquorice powder (pulv. glycyrrhizae Co.) rhubarb, senna. The best preparation of the last-named is a tea which is prepared by boiling a requisite number of pods (varying according to the patient) in water, thus making a fresh infusion. Another method of administering senna is in the well-known preparation confection of senna. Seidlitz powder, cascara sagrada, purgen, Epsom salts, Glauber's salts, paraffin emulsion or regulin. The last forms a pleasant method of taking a purge, since it can be eaten with porridge, vegetables, &c., without imparting any taste. Paraffin can also be taken mixed with virol or malt, of which virolax or laxamel are examples. Other useful more powerful drugs which should only be given under doctor's instructions are aloes, calomel, jalap, elaterium, and

croton oil. Enemata are, of course, another means of producing an action of the bowels. Galvanism and massage of the abdomen are sometimes beneficial.

Colitis means inflammation of the large bowel. It occurs as a distinct condition as well as in dysentery and other intestinal diseases. It is characterised by abdominal pain and the passage of mucous casts.

NURSING.—Consists in attempts to improve the general health with the administration of regular aperients, such as castor oil night and morning, and washing out the lower bowel with plain water. In the severer forms, where blood is passed, the diet should be restricted to milk, jellies, and custard. Fruit and vegetables must be avoided. Sour milk treatment has been prescribed (see sick-room dietary). Vaccine-therapy and surgical measures are the more extreme forms of treatment which may be undertaken in severe cases.

Peritonitis.—Peritonitis means inflammation of the membrane covering the intestines. It may be acute or chronic.

Acute Peritonitis.—*Cause.*—The most usual causes of acute peritonitis are perforation of an ulcer in the stomach or bowel, appendicitis, inflammation of the uterine appendages, and abscess of the gall bladder. It also occurs in injury to the abdomen, and sometimes follows operations.

SIGNS AND SYMPTOMS.—It begins with a shivering fit and pain in the abdomen. The abdomen gradually becomes distended, and does not move on respiration. There may be evidence of fluid. The legs are drawn up, and the patient refrains from talking, or coughing in order to avoid pain. The pulse is frequent, and the

expression is anxious. After the initial chill the temperature rises to about 104° . Later there may be only a moderate fever. Vomiting occurs early, and is a prominent feature.

The NURSING of peritonitis, looked at from the medical standpoint, refers only to those cases where no operation can be performed or to post-operative treatment. The patient is placed upon his back with a pillow beneath his knees. The diet consists of meat essences and whey, since milk generally produces flatulence. Ice and effervescing drinks may be given for the vomiting. Cloths wrung out of hot water and sprinkled with turpentine may be applied to the abdomen. For further details the nurse is referred to a surgical book.

Chronic Peritonitis.—The only important variety is the tuberculous one, which is most frequently met with in children.

SIGNS AND SYMPTOMS.—There is pain in the abdomen, which the child grasps to prevent movement. Anæmia, wasting, diarrhœa, and night sweats are present. Fever may or may not be observed.

NURSING.—Consists in keeping the patient in bed on a full diet. The medicinal treatment may be either by means of Guaiacol pills or mercurial inunctions. Up till recently it has been the custom, when improvement did not occur, to aspirate, but the necessity for this procedure has become much less frequent since the introduction of treatment by tuberculin injections.

Ascites means a collection of fluid in the abdominal cavity. The abdomen is distended, the navel is flattened out, and the superficial veins are enlarged. It occurs in peritonitis, cirrhosis or growths of the liver, pressure of tumours or enlarged glands, with thrombosis of the

portal vein or with any abdominal tumour—*e.g.* of the spleen, ovaries, &c. It also occurs as a part of general dropsy, in chronic heart, lung, and kidney disease.

NURSING.—For the nursing, the nurse is referred to the sections under the various causes enumerated above.

Melæna means the passage per rectum of dark blood—that is, blood which has originated from the stomach or in the upper part of the small intestine, and undergone changes during its passage down the alimentary canal.

Colic means severe griping pains in the abdomen. According to its cause it is known as gastric, renal, biliary, intestinal, and appendicular. It is merely a symptom, and needs no special description apart from that given under the causes.

Hæmatemesis means the vomiting of blood. It therefore occurs in any lesions of the stomach, certain acute specific fevers, blood diseases, or injury. (*N.B.*—Blood which has come from the nose and has been swallowed may be subsequently vomited.) Here it may perhaps be convenient to consider the differential points between hæmatemesis and hæmoptysis (the spitting of blood).

Hæmatemesis.

1. Previous history of gastric or hepatic disease.
2. The blood is vomited after a feeling of faintness or giddiness.
3. The blood is clotted, mixed with food, acid, and may be dark, grumous, and fluid.

Hæmoptysis.

1. Cough or signs of some cardiac or pulmonary disease.
2. The blood is coughed up, preceded by tickling in the throat.
3. The blood is frothy, red, and alkaline, and rarely contains large clots.

Hæmatemesis—*continued*

4. The patient subsequently passes tarry stools.
5. No fever during or after the attack.

Hæmoptysis—*continued*

4. The cough persists, with signs in the chest, and the sputum is blood-stained for days.
5. There may be fever or accompanying night sweats during the attack.

DISEASES OF THE LIVER

Jaundice.—When jaundice is present there is a yellowness of the skin with the accompaniment of the following signs and symptoms.

SIGNS AND SYMPTOMS.—The skin and conjunctiva are stained yellow. Itching is often complained of. There is frequently irritability and depression. The respirations and pulse are slow. The temperature is usually subnormal. The motions are white or clay coloured. The urine is brown in colour and contains bile.

Catarrhal Jaundice.—Occurs with inflammation of the stomach and intestines, accompanies some acute specific fevers and (rarely) follows a shock.

SIGNS AND SYMPTOMS.—Jaundice, vomiting, diarrhœa, tenderness over the liver, and a raised temperature.

NURSING.—The patient should be kept in bed so long as fever is present. Improvement in the condition can be told by observing the following data. The first sign is the return to the normal colour of the motions, secondly, the yellow colour disappears from the skin and conjunctiva, and lastly, the urine becomes free from bile. The diet must be fluid, and preferably without meat extracts, such as beef tea, &c. Mineral

waters, especially Vichy, are good. As the patient improves, meat and fats may be given in small quantities. The vomiting and constipation will require suitable drugs. Alkaline baths, made by adding sodium bicarbonate (washing soda) 1 oz. to the gallon, will relieve severe itching. Fomentations over the liver may be ordered. The disease generally lasts about three weeks, but in some cases it may persist for a much longer time.

Cirrhosis of the Liver.—There are many varieties, but the only one commonly met with is known from its cause as alcoholic cirrhosis.

SIGNS AND SYMPTOMS.—There are dyspepsia, ascites, hæmorrhages from the mouth and rectum, and, in the last stage, jaundice and great wasting. The patients are extremely liable to pulmonary tuberculosis.

NURSING.—Consists in forbidding alcohol absolutely, treating the dyspepsia on the lines given on p. 123, and treating the ascites in the following manner.

In order to get rid of the fluid, the amount of liquid in the diet is rigidly restricted, and purges and diuretics are given freely; but if these measures fail to diminish the fluid, it will be necessary to tap the abdomen. Should the doctor decide to do this, the nurse must first scrub with soap and water all the abdomen below the navel, and then wash with ether—in fact, prepare as for a surgical operation. A piece of rubber tubing sufficiently long to reach from the abdomen over the side of the bed to the floor is boiled, and a large jar is placed close to the side of the bed. A trocar and cannula is fixed into the rubber tubing after having been boiled and placed in a bowl containing some antiseptic. A many-tailed bandage is arranged

in position behind the patient's back, and the patient is placed in the semi-recumbent position.

Before the doctor arrives, it is the nurse's duty to see that the patient passes his urine; if he is unable to do so she should inform the doctor, who will probably use a catheter. Having inserted the trocar and cannula, the doctor will withdraw the trocar and leave the cannula in the abdomen. The fluid then runs through the rubber tubing into the jar at the side of the bed. As the fluid escapes, the nurse at intervals brings over the ends of the many-tailed bandage and tightens them. Occasionally the patient faints or shows signs of collapse during the process, and the nurse should be ready for this emergency by having brandy close at hand. The complete drainage sometimes occupies many hours. When this has ceased, the doctor removes the cannula and applies a collodion dressing.

Tape Worms.—Human beings become affected through eating diseased pork, beef, &c.

SIGNS AND SYMPTOMS.—The appetite is ravenous. There is general languor, with abdominal pain, and there may be itching at the nose and anus. Segments of the worm are passed in the motions.

NURSING.—For two or three days the patient's diet is restricted, and purges are administered. After this period, the first thing in the morning before breakfast, a dose of extract of male fern is given, to be followed a few hours later by a purge. The motions subsequently passed must be carefully kept for the doctor's inspection. If the head of the worm is not removed in this manner, segments will appear in the motions two or three months later.

Round Worms.—**SIGNS AND SYMPTOMS.**—The same

are present as in the case of tape worms except that when the worm is expelled it is passed as a whole and not in segments, and resembles an earthworm, except that it is pinker.

NURSING.—Powders containing santonin are given before breakfast. The object of giving them at this time of the day is to eliminate one of the ill-effects, namely, yellow vision, which is not noticed by artificial light. Another effect of this drug is to cause the urine to be dark coloured. The doctor should always be informed if this happens (see p. 37).

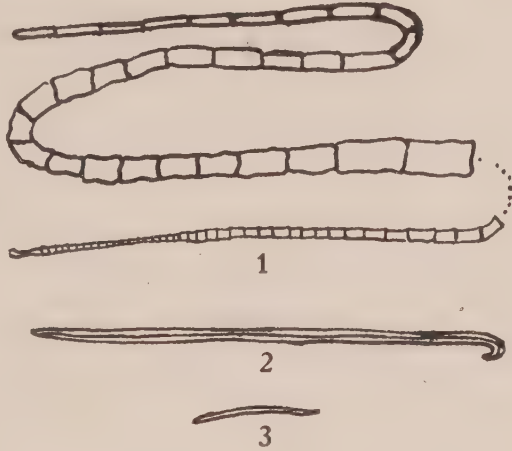


FIG. 46.

1. Tape worm—measures, according to variety, 10 to 30 feet, the largest segments measure about $\frac{3}{4}$ inch.
2. Round worm—measures about 8 to 16 inches.
3. Thread worm—measures about $\frac{1}{2}$ inch.

Thread Worms are so called from their resemblance to small pieces of thread. They are easily seen in the motions, there is itching round the anus, and occasionally prolapse of the bowel occurs. The vulva may be inflamed, and wetting of the bed may occur from reflex irritation.

NURSING.—Purges are administered, and every night an injection, $\frac{1}{2}$ –1 pint of water, containing a teaspoonful of salt or quassia chips, is injected into the rectum. This is best done with the child lying on one side. After the injection has been performed, one hand of the nurse should gently press down the upper buttock, so that the fluid can be retained by the patient for five or ten

minutes. Ointment should be put round the anus. The hands of the child should be encased in gloves to prevent auto-infection.

The other worms met with in man are not common enough to merit description.

DISEASES OF THE KIDNEYS

The Urinary Organs.—The blood circulates through the kidneys, and these organs separate from it the various constituents, urea, urates, &c., and form urine. The urine leaves the kidneys by the ureters, which in turn empty into the bladder. From the bladder the urine is conducted along the urethra, which ends (in the male) in the penis, and (in the female) in the vulva. The kidneys, which are two in number, are situated in the small of the back, one on either side of the spine, just below the ribs. The bladder is within the pelvis, and when full may reach halfway between the umbilicus and symphysis pubis.

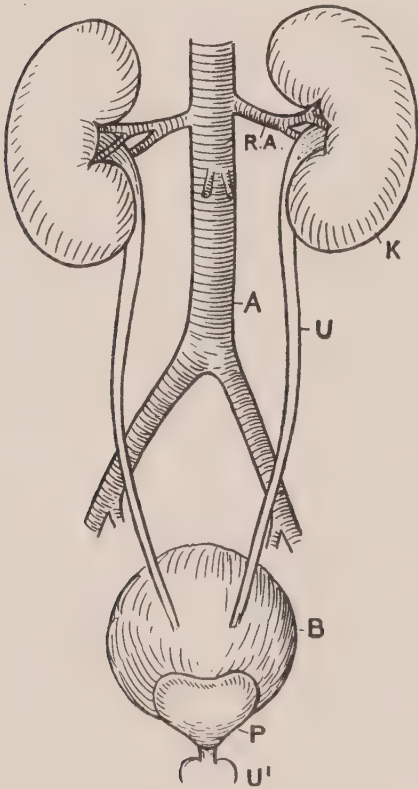


FIG. 47.

R.A. Renal Artery. K. Kidney.
A. Aorta. U. Ureter. B. Bladder.
P. Prostate. U'. Urethra.

Nephritis or Bright's Disease (inflammation of the kidneys).—This may be acute or chronic.

Acute.—This follows exposure to wet or cold, certain fevers, especially diph-

theria and scarlet fever. It may be produced by certain drugs, such as turpentine and cantharides. It is occasionally a complication of pregnancy.

SIGNS AND SYMPTOMS.—The temperature is generally a little raised, the backs of the hands, eyelids, and scrotum may be swollen (œdema). Occasionally œdema is present all over the body. There is severe pain in the loins, the urine is scanty, high coloured, and contains blood and albumen. (All urine should be carefully preserved for the doctor's inspection.)

NURSING.—The patient is kept in bed and given only milk and food made with milk. The main idea in the treatment is to withdraw the fluid from the body by means of the skin and the bowels, thus sparing the work of the inflamed kidneys. For this purpose a hot bath or a hot air or vapour bath may be given (see p. 60). Sometimes a wet pack is ordered, whilst locally cups or poultices are applied over the loins (see p. 64). The convalescence after nephritis requires very careful treatment, with abundance of nutritious food and the avoidance of cold or wet.

Chronic Nephritis or Chronic Bright's Disease.—Of this there are two varieties, one known as chronic parenchymatous nephritis or large white kidney, and the other as chronic interstitial nephritis or gouty or granular kidney.

The first variety produces great dropsy, anæmia, and scanty urine, similar to that in acute nephritis.

The second variety produces headache, frequency of micturition, especially at night, when light coloured urine of a low specific gravity is passed.

NURSING.—The treatment for the large white kidney is similar to that of acute nephritis, but for granular

kidney the main lines to be followed are, first, the exclusion from the diet as far as possible of meat and meat extracts, and, secondly, the prohibition of alcohol.

The patient may take: Milk and vegetable soups, broth, boiled fresh fish, oysters, poultry, pigeon, game, fat bacon, turnips, cabbage, asparagus, cauliflower, lettuce, salads, watercress, mushrooms, potatoes (old), porridge, rice, sago, tapioca, arrowroot, macaroni, milk puddings, stale bread, toast, biscuits, stewed fruits, ripe raw fruit, water, Vichy water, soda water, salutaris, milk diluted with water, or whey, weak tea, toastwater, barley water.

He may not take: Fried fish, preserved meat, pork, veal, new bread, beef teas, broths, soup, meat essences, stews, beef, mutton, beans, pastry, sweets, coffee, beer, stout, or alcohol in any form, and tobacco. The bowels must be kept open.

Uræmia may occur with any form of nephritis.

SIGNS AND SYMPTOMS.—There may be hiccough, vomiting, and diarrhœa. Dyspnœa or difficulty in breathing may be present. Headaches, twitchings, convulsions, loss of power in a limb, blindness or mania are all familiar symptoms. The urine is scanty or suppressed, and fever is generally present. Finally, coma and death may ensue.

NURSING.—The patient is, of course, put to bed; a strong purgative is given. Venesection may be necessary. Poultices or cups may be placed over the loins.

Dropsy means increase of fluid under the skin and in the abdominal cavity, and in the sacs in which the heart and lungs lie. According to its position various names are used. For example, when the effusion occurs in a limb it is known as œdema, and when it occurs in the abdomen it is known as ascites. It is met with in

Bright's disease, anæmia, or when inflammation or obstruction in a vein occurs.

Renal Colic.—Renal colic or pain in the kidney occurs when a stone is present. There is pain in the loin or down the side of the groin. Its onset is sudden; the patient writhes in agony, is sick, shivers, and perspires freely. There is a constant desire to micturate, but only a few drops of blood-stained urine are passed. This should be carefully saved for the doctor's inspection.

NURSING.—A hypodermic injection of morphia is nearly always given by the doctor. Poultices should be placed over the kidney region; or, better still, if the patient is able to move, he should get into a hot bath. He is kept in bed, and a purge is usually administered.

Urine.—Normally a person passes about $2\frac{1}{2}$ pints in the twenty-four hours. The reaction is acid. The reaction of the urine is tested by litmus papers—red and blue. An acid urine turns the blue paper red; an alkaline urine, the red paper blue; neutral urine leaves the colour of both unaltered. The specific gravity, which is taken by means of a **urinometer**, is normally 1015–1025.

The nurse may be expected to test the urine, and below are given the necessary details for the tests usually required.

Uric acid and urates settle to the bottom of the specimen glass as a brick-red deposit. *Urates* are dissolved by heat. *Phosphates* settle as a whitish deposit; when the urine is heated in a test tube the cloudiness increases, but disappears on the addition of dilute acetic acid, thus distinguishing it from albumen,

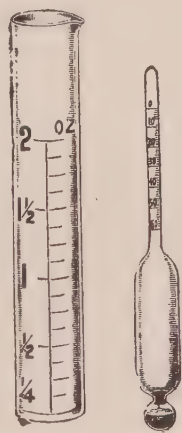


FIG. 48.

the cloudiness of which is increased by the acid. Urine containing phosphates is alkaline. *Pus*, *mucus*, and *debris* also cause a whitish deposit.

Albumen.—(a) When a test tube half full of urine is heated, cloudiness appears and deepens on the addition of acetic acid.

(b) If a few drops of urine are gently poured down the side of a test tube containing about a teaspoonful of nitric acid, a white ring appears at the junction of the two fluids.

Blood.—The presence of blood in the urine is termed hæmaturia. A few drops of tincture of guaiacum are added to the urine, and then ozonic ether is gently poured on top; at the junction of the fluids a blue ring appears if blood is present. The presence of blood necessarily implies the presence of albumen, so that the test for the latter will also be obtained.

Bile.—(a) Place a drop or two of urine and a drop or two of nitric acid in close proximity on a white plate. Gently bring the two fluids together, and at the point of contact a play of colours will be observed.

(b) If a little iodine is dropped into a test tube containing the urine, a greenish colour is produced.

Pus.—When liquor potassæ is added to urine containing pus, ropy strands appear.

Sugar.—Of the many tests in common use, only two will be described.

(a) *Fehling's Test*.—A teaspoonful of Fehling's solution in a test tube is boiled to see whether it is pure, for it is liable to decompose on keeping. If the solution is satisfactory, heating should cause no change. A few drops of urine previously boiled in another test tube are then added to the Fehling, when a yellow precipitate, quickly changing to red, appears if sugar is present.

(b) *Fermentation Test*.—Two specimen glasses are filled with urine. Into one is placed a piece of German yeast about the size of a threepenny-piece. The glasses are covered, and kept in a warm place for twenty-four hours. The specific gravity is now taken, when it will be found that the urine containing the yeast has a much lower specific gravity. The difference between the two specific gravities indicates the number of grains of sugar contained in each ounce of the urine.

Finally, it should be noted that there are many other substances which can give the above tests, so that a positive result must not be considered as necessarily indicative of the presence of sugar, blood, albumen, &c.

CHAPTER VIII

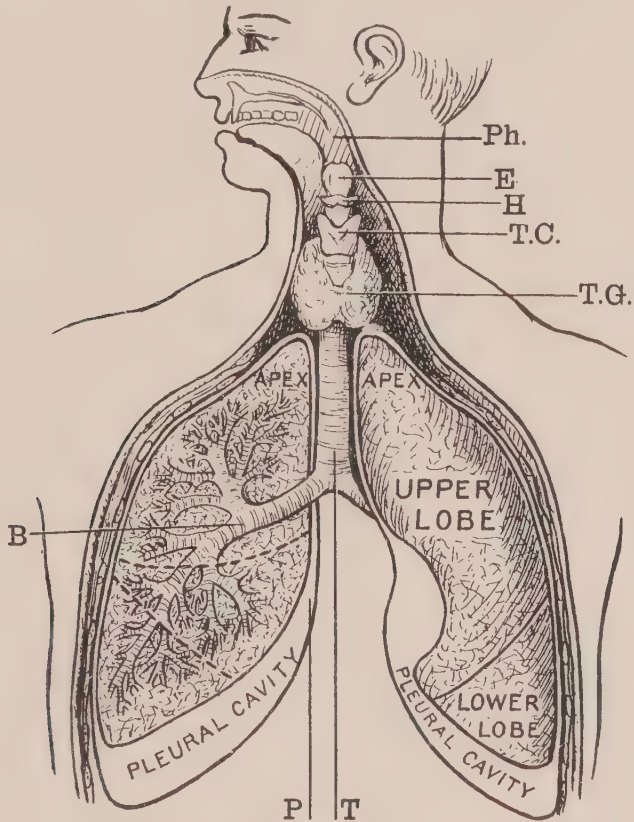
DISEASES OF THE RESPIRATORY SYSTEM

BEFORE considering the diseases of the respiratory system, it may be helpful to the nurse to observe the various inflammatory conditions met with (see Fig. 49). Thus, inflammation of the larynx is known as **laryngitis**, and inflammation of the bronchi as **bronchitis**. When the whole lobe of a lung is affected, the condition is called **lobar pneumonia**; when small areas or lobules of the lung (generally following an extension downwards of inflammation of the bronchi) are attacked, the condition is known as **broncho-pneumonia** or **lobular pneumonia**. When the membrane lining the lung (the pleura) is inflamed, it is known as **pleurisy**; and when air is present in the cavity lined by this membrane the condition is called **pneumothorax**. When inflammation of the lung takes place, the lung may be so full of inflammatory matter as to be solid, such a condition being known as **consolidation**. When any inflamed portion of the lung, instead of healing, becomes decayed, and is coughed up by the patient as debris, the result of this loss of tissue is the formation of a **cavity** in the lung. The wheezing noises which are heard in the chest in diseases of the lung are called **râles** or **crepitations**. Difficulty in breathing is referred to in the following pages as **dyspnœa**.

Cheyne Stokes respiration is characterised by alter-

nating periods of slow and rapid breathing. It occurs in many conditions, especially cerebral or heart disease, uræmia, &c.

Aphonia means loss of voice.



Ph. Pharynx. E. Epiglottis. H. Hyoid.
T.C. Thyroid Cartilage. T.G. Thyroid
Gland. T. Trachea. P. Pleura. B.
Bronchus.

FIG. 49.

Percussion is the method employed to gain information as to the condition of the lung by tapping on the chest with the fingers, the quality of the note produced indicating the degree of consolidation.

Auscultation is the process of listening with a stethoscope to the sounds in the lungs.

A cold or catarrh occurs when the mucous membrane lining the throat and nose is inflamed.

SIGNS AND SYMPTOMS.—In severe cases there is a feeling of malaise, headache, fever, rapid pulse, furred tongue, constipation, and scanty urine. Running from the eyes and nose occurs, with repeated sneezing attacks. Breathing through the nose is obstructed. This condition may be followed by bronchitis.

NURSING.—If seen early, the patient should be given a hot bath, placed in a warm bed, and hot drinks should be taken. These procedures usually produce profuse sweating. The patient must, of course, remain in bed for a day or two, during which time he takes a diaphoretic mixture and sedatives. Ammoniated tincture of quinine and eucalyptus are very popular remedies. For influenza, see pp. 99, 100.

Hay Fever.—This is a condition in which fits of sneezing occur. It usually prevails in the spring or hay season, and appears to be due to the irritation of the mucous membrane by the pollen of grass or flowers.

NURSING.—Obviously the most important point is to avoid living in country districts. The seaside is advantageous, provided the wind blows from the sea and not from the land. A sea voyage always cuts short an attack, or prevents its occurrence; but if this should be impossible, a high, dry altitude should be chosen. During an acute attack the patient should be kept in a darkened room, and the inside of the nose treated with some soothing ointment, such as zinc or boracic acid, two or three times a day. Injections of pollantin or adrenalin may be found of value. Great benefit often results from cauterisation of the mucous membrane of the nose.

Nose Bleeding or Epistaxis.—NURSING.—The patient should be put into an easy-chair, with his head back and his nose in the air. Plugs of cotton-wool may be placed in the nose. In bad cases the doctor will probably soak the wool in adrenalin chloride (1 in 1000). Ice can be applied to the bridge of the nose. A purge should always be administered, whatever the cause.

Laryngitis or Inflammation of the Larynx.—May be acute or chronic.

Acute Laryngitis.—This may occur in the course of measles, influenza, &c., as the result of swallowing hot liquids, from inhaling irritating fumes, from over-use of the voice, or exposure to inclement weather.

SIGNS AND SYMPTOMS.—Huskiness or absence of voice with pain in the throat is present. The temperature is slightly raised. In severe cases signs of asphyxia, as given under diphtheria, may occur.

NURSING.—The patient must be put to bed in a warm room. A steam kettle containing friar's balsam, one teaspoonful to a pint, should be placed upon the fire, and at intervals the patient may inhale the steam from a jug of hot water containing the same medication. He should not be allowed to speak. Light fomentations or ice to the neck will relieve the pain. A purge should be administered.

Chronic Laryngitis occurs in public speakers and those who smoke or drink to excess. Syphilis, tubercle, and cancer are also causes.

SIGNS AND SYMPTOMS.—These include hoarseness, constant cough, and perhaps slight pain in the region of the larynx.

NURSING consists in avoiding the causes, such as

alcohol, smoking, and prolonged or vigorous speaking, and in the treatment of other causes, such as syphilis, tubercle, and cancer. Locally the throat may be painted or sprayed. Insufflation (the puffing of powder) into the throat may be employed for the same purpose.

Bronchitis or Inflammation of the Bronchi may be acute or chronic.

Acute Bronchitis.—The causes are very similar to those of acute laryngitis. Rickety children are particularly susceptible.

SIGNS AND SYMPTOMS.—There is a feeling of rawness under the breastbone, difficulty in breathing, constant cough with sputum, which increases in quantity as the disease progresses. The temperature is raised.

NURSING.—The patient should at once be put to bed in a room where the temperature is 60-65°. A steam kettle,

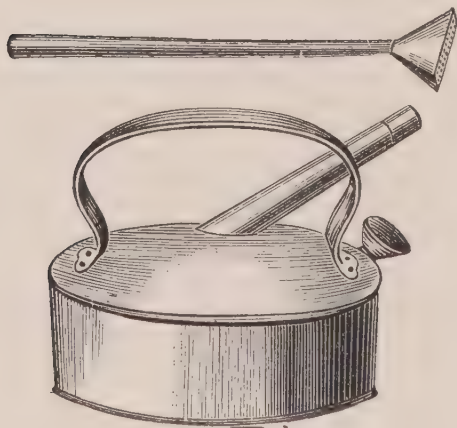


FIG. 50.

or *Bronchitis Kettle* (Fig. 50), containing friar's balsam (1 drachm to the pint), should be placed upon the fire. A light poultice or a mustard leaf should be applied to the front of the chest during the early stages. Later, when expectoration is freer, liniments such as soap or camphor should be well rubbed into the chest.

Stimulants should always be kept at hand, but should of course not be given without the orders of the doctor. The sputum must be kept for the physician's inspection. In bad cases it may be necessary to administer oxygen.

OXYGEN INHALATION.—The gas is supplied in large steel cylinders. At their outlet a piece of rubber tubing is fixed, to which a glass funnel is adapted. The oxygen is allowed to escape very slowly through the funnel, which is placed at a little distance away from the patient's face. A quarter of an hour is the usual period of administration, repeated every three or four hours according to the doctor's instructions. Oxygen is a mild irritant, and is therefore sometimes

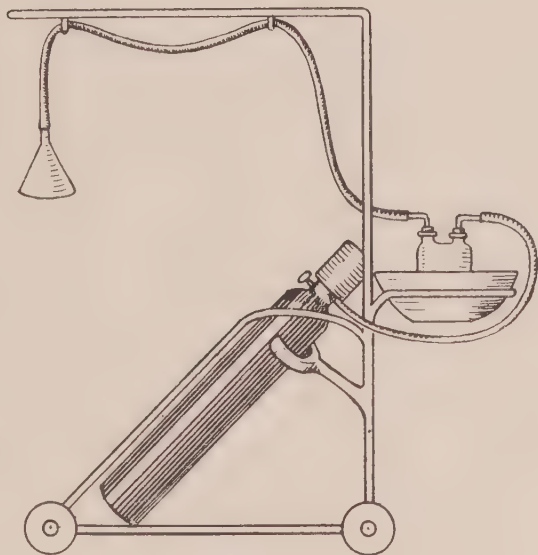


FIG. 51.

passed through warm water, or, in cases where the heart is failing, through brandy. The accompanying diagram (Fig. 51) shows one of the many ways in which the apparatus can be fixed for use.

Chronic Bronchitis may follow acute bronchitis. It occurs in chronic heart, lung or kidney disease, in gout, &c. But undoubtedly the factor that plays the most important part in this condition is climate, and, where possible, the patient who is susceptible should spend the winter in a warm, dry atmosphere.

Many patients suffer from a fit of coughing at night and in the morning simply from exposing the body to cold during dressing and undressing. The obvious remedy is a fire in the bedroom. For similar reasons the patient should avoid using a cold lavatory. Many

sufferers will find great relief if they take cod liver oil for a long period of time irrespective of whether they have a cold or not. The medicine usually ordered for the cough is a mixture containing senega and ammonia.

Bronchiectasis.—This is a condition in which, as the result of inflammation, the walls of the bronchi are partly eaten away, thus leading to the formation of little cavities. Therefore it may occur in bronchitis, pneumonia, tuberculosis, &c., or it may result from some substance slipping into the respiratory passages.

SIGNS AND SYMPTOMS are similar to those of bronchitis, except that any change of position will bring on a fit of coughing and the expectoration of large quantities of foul-smelling sputum. The ends of the fingers are frequently clubbed.



FIG. 52.

NURSING.—The patient should be placed in the fresh air and sunshine as much as possible. The diet should be full and nourishing, and cod liver oil is added. The emptying of the cavities can be assisted by mechanical means, such as causing the child to lean over the end of the bed. Inhalations of such drugs as creosote are beneficial. The nurse must, however, remember that this is a very irritating drug; a pad of cotton-wool

should be placed over the eyes and in the nostrils, and a handkerchief tied round the eyes in order to prevent inflammation. For the treatment by inhalation, the patient should be placed in an air-tight chamber. A teaspoonful of creosote should be placed in a small

bath, as shown in the diagram (Fig. 52), and the patient made to inhale the fumes for five or ten minutes.

Asthma is a condition in which sudden attacks of difficulty in breathing occur at irregular intervals. In children it is often found in connection with adenoids or polypi; in adults, with chronic bronchitis. An attack may be induced by indigestion, or by change to certain localities peculiar to each individual. In every case there is a large underlying nervous element.

SIGNS AND SYMPTOMS.—Without any warning a sudden attack of dyspnoea occurs, frequently in the night. The breathing is noisy, wheezy and laboured, and the patient becomes more and more cyanosed. After a varying time a cough occurs, with expectoration, and the patient drops off to sleep. The sputum should always be kept for the doctor's inspection.

NURSING.—During an attack, the burning of certain powders will often produce relief, but it is to be remembered that some of the patent powders sold for this purpose contain drugs which are injurious to the heart, and the constant use of them is inadvisable. As an alternative, cigarettes containing the same drugs, or nitre papers, are sometimes used. The doctor may give an injection of adrenalin or break a capsule of amyl nitrite. In between the attacks the patient should live in that locality which he has found to suit him best. Food must be chosen and eaten carefully, so as to avoid indigestion, and the individual will soon find certain articles which are more likely to bring on an attack than others; in any case a heavy meal should never be eaten late at night. Tonics, like cod liver oil, should be taken, and any pulmonary cause (such as bronchitis) must always be treated.

Pneumonia.—As stated in the initial paragraph of this chapter, this condition may be one of two varieties, **Lobar Pneumonia**, generally referred to simply as pneumonia, and **Broncho-Pneumonia**.

Lobar-Pneumonia.—**CAUSE.**—This is always due to a particular microbe which is known as the pneumococcus.

SIGNS AND SYMPTOMS.—Typically the illness starts suddenly with a shivering fit, and the temperature rises rapidly to 103° or 104° . Breathing becomes rapid, and there is pain in the chest or abdomen. The patient feels very ill, and is forced to go to bed, where he lies breathing with difficulty; his cheeks are flushed and his nostrils dilated. There are frequently vesicles in the region of the lips (see Herpes). The skin is hot and dry to the touch. There is usually an irritable cough, which causes great pain. The only expectoration is a very little rusty sticky sputum, which should on no account be thrown away until seen by the doctor. The temperature remains at about 103° or 104° for five or seven days, when the crisis typically occurs, and is characterised by a fall in the temperature to normal or subnormal, with profuse perspiration. Delirium is frequent in the pre-critical stage.

NURSING.—There is no disease in which nursing plays such an important part, for there is no known drug which will cut an attack short, and the result depends to a large extent upon the nurse. The patient is put to bed, and left in the position which he himself assumes as the most comfortable. The room, which must be quiet and well-ventilated, should be kept at a temperature of $60-65^{\circ}$ F. The bed clothing should not be so heavy as to be oppressive. The diet should consist of eggs, milk, beef tea, broth, oxtail soup, calves'

foot jelly, bovril, &c. Water and lemonade may be left at the side of the bed to relieve the thirst which the fever often produces. For the pain, poultices or a mustard leaf may be placed on the affected side, and the doctor may order the application of leeches. Medicine will be given for the fever and for the cough. Cradling or sponging may be necessary for the fever. On no account should the nurse on her own responsibility give any drug for the purpose of inducing sleep, but simple remedies such as sponging, darkening the room, may be tried, and will often prove effectual. The bowels should be kept open, and since the patient is not allowed out of bed, a bed-pan should be in readiness. The appearance of the patient, and also the pulse, should be noted by the nurse as an indication as to whether the heart is keeping up its strength, for in feeble persons, or even in the healthy, it is often necessary to assist the heart by means of brandy or other stimulants or to give oxygen (see page 147). Venesection is occasionally performed to relieve the heart. The usual details as regards the treatment of the fever, such as cleansing the mouth, should be rigorously observed. The crisis may occur any day from the 5th–10th (most commonly on the 5th or 7th), and the nurse should be prepared with hot blankets, hot coffee or even brandy, lest the patient shows signs of collapse. For further details as to poultices, cradling and sponging, the nurse is referred to Chapter IV.

Broncho-Pneumonia is an extremely common complication of all the acute specific fevers, especially measles and whooping-cough. It frequently follows bronchitis and sepsis in the mouth. It occurs more often in children than in adults.

SIGNS AND SYMPTOMS.—It frequently begins with signs of bronchitis. The temperature mounts higher daily in an irregular manner, persists irregularly high for an indefinite time from a few days to three weeks, and falls in a manner similar to that in which it rose. Breathing is difficult, and accompanied by a grunting noise. The nostrils are often widely dilated. The respirations and pulse rate are increased. The other signs and symptoms are very similar to those of lobar pneumonia.

NURSING.—The treatment is the same as for bronchitis, and it must not be forgotten that, as children are usually the sufferers, and do not expectorate, an emetic is generally ordered. For children a jacket poultice is better than the ordinary poultice, thermogen, &c. During the convalescence the patient must be sent to the country, and tonic drugs with a liberal diet should be ordered.

Pleurisy is an inflammation of the lining membrane of the lungs. Pleurisy may be dry, when there is no fluid present, or there may be clear straw-coloured or purulent matter in the cavity. When pus is present, the condition is known as **Empyema**.

Cause.—Pleurisy may be caused by exposure to cold or wet, or may occur in the acute specific fevers, pneumonia, tuberculosis, &c.

SIGNS AND SYMPTOMS.—There is fever, with a stabbing pain in the chest each time that the patient takes a breath or coughs. If the hand is placed on the chest, a rough sensation of friction may be felt.

NURSING.—The patient should be put to bed in a warm, well ventilated room. The diet should be fairly dry and as for fevers. Purges should be freely administered. A sedative such as linctus may be ordered.

Locally, the side may be strapped with adhesive plaster, as pressure gives the patient relief. It is applied in long strips in the manner shown in the diagram.

When removing it the nurse will find that rapid removal is sometimes less painful than pulling it off slowly. In either case great care must be exercised to avoid injuring the skin. Oil well rubbed into the skin will take away the stains left by the strapping. Otherwise poultices, mustard leaves or

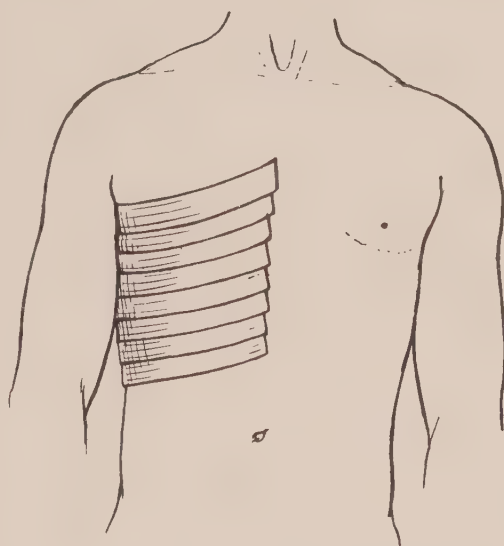


FIG. 53.

leeches will be beneficial. The patient will gain most comfort by lying on his affected side.

Pleurisy with Effusion is characterised by fever and difficulty in breathing. The heart frequently becomes distressed, owing to the pressure of the fluid upon it.

NURSING follows the same principles as given under Dry Pleurisy, but the fluid may need removal by aspiration or tapping. The nurse will be expected to get the apparatus ready.

ASPIRATION OF THE CHEST.—The doctor will indicate to the nurse the region on the chest in which he wishes to insert the needle. This area is prepared as for a surgical operation, and is then rendered anæsthetic by means of injections of eucaine or by freezing. All the instruments and apparatus have been previously boiled and rendered sterile. The size of the trocar and

cannula will be decided by the doctor. The way in which the apparatus is put together will be better understood by studying the accompanying diagram.

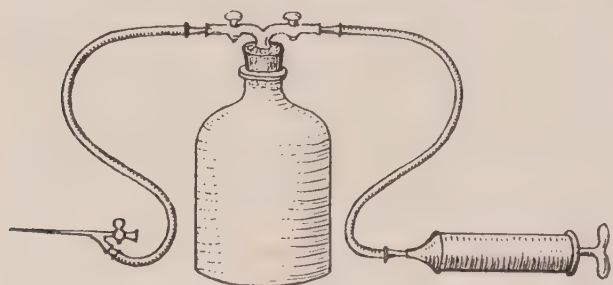


FIG. 54.

The physician will make a small incision in the skin first, or he may plunge the trocar straight into the cavity. The trocar is then withdrawn, leaving the

cannula in its place. The effusion runs into the large Winchester bottle, its passage being assisted by suction with the pump. After the fluid has been withdrawn, the cannula is taken out, and a piece of gauze soaked in collodion is placed over the wound. The chest is then either bandaged or covered up with pieces of strapping as in dry pleurisy. Occasionally patients faint or show signs of collapse, and the nurse must have brandy close at hand for this emergency. She should carefully watch the patient, and unobtrusively observe his pulse, and immediately report any change to the doctor. Should the fluid prove to be pus (empyema) an operation, resection of a rib, will almost certainly be performed, for details of which the nurse is referred to a surgical book. Various exercises to develop the chest are frequently ordered after an attack of pleurisy.

In **Empyema** the temperature is very irregular, and rigors—that is to say, shivering fits and sweats—repeatedly occur. The difficulty in breathing is intense. The heart often shows signs of failure, and the patient has an ashy grey, ill appearance. The treatment is described above.

Pneumothorax is the presence of air in the pleural cavity, either as the result of an injury through the chest wall, or the bursting into the pleura of an abscess cavity in the lung. The patient is seized with sudden dyspnœa, rapidly becomes cyanosed and collapsed. The nurse should make the patient as comfortable as possible, and send for the doctor, who may perhaps aspirate the chest to allow the air to escape.

Hæmoptysis is the term given to the spitting of blood, which arises from disease of the respiratory tract. (In this connection the reader should see the article on Hæmatemesis, p. 131). Pulmonary tuberculosis is perhaps the most frequent cause, but it must be remembered that hæmoptysis can occur with any of the diseases of the lung mentioned above or with heart disease.

NURSING.—The patient is always so mentally distressed by the occurrence that the nurse's first duty should be to reassure him that it is not serious. The patient should be propped up in bed. It is not necessary to undress him, at any rate for a time. It is essential that he should be kept quiet and not allowed to speak, and to insure this all friends and relations should be excluded from the room. Ice should be applied to the front of the chest, and small pieces given him to suck. On no account must alcohol be allowed. A purge should be administered, and by this time the doctor, who was of course summoned immediately, will probably have arrived. He may make use of morphia or amyl nitrite. The patient should be kept in bed for several days after an attack, no matter how rapid and complete his recovery may be. The diet should be cold, light, and unstimulating.

Consumption, Phthisis, or Pulmonary Tuberculosis.

—It is not without interest to state that there seems to be some difficulty in pronouncing the word phthisis, which should be pronounced “thighsis.”

Cause.—It is due to the tubercle bacillus, and it is only when this microbe attacks the lungs that the above names are used. When it attacks other parts, the affection is appropriately described as tuberculous joints, tuberculous glands, &c. When it occurs suddenly, and affects practically every organ in the body, and is followed by death in a few weeks, it is known as acute miliary tuberculosis.

We are for the moment only concerned with its lesions in the lungs. The organism gains access generally by being inhaled, but occasionally through the blood after it has been swallowed in infected food. It is probable that we all at some time or other take into our systems the tubercle bacillus, and the reason that some get consumption and some do not depends entirely upon the health at the time of ingestion.

SIGNS AND SYMPTOMS.—When a person is attacked by phthisis, the disease can manifest itself in the following forms:

(1) **Acute Phthisis or Galloping Consumption.**—The patient exhibits signs and symptoms identical with those of lobar or lobular pneumonia, as described above, except that the tubercle bacillus is found in the sputum, and the temperature is very irregular and is accompanied by night sweats and marked cyanosis. This form is extremely fatal—as a rule, within a few weeks.

(2) The **Chronic** variety may occasionally be what is known as **Fibroid Phthisis**. This is so called because of the large amount of fibrous tissue laid down in the lung, which draws the lung together, and is in reality

Nature's attempt at healing. Such cases, if treated, live a great number of years; but since the treatment is the same as in the more usual variety about to be described, no further description need be given.

(3) **Ulcerative Phthisis.**—This is the type commonly met with, and always referred to as “Consumption,” or the sufferers are said to have “gone into a decline.” It has many ways of starting, of which perhaps the best known is hæmoptysis, but it frequently begins in such an insidious manner, that it may exist a long time before the patient or his friends realise that something serious is present. Thus bronchitis, or what appears to be a prolonged cold, or anæmia or general debility, are examples of its onset. We have already observed that pleurisy is another manner in which it may start.

When once it is established, the patient complains of constant cough, loss of weight, a sensation of turning hot in the evening, sometimes accompanied by a flush on the cheeks, and sweating during the early hours of the morning. These perspirations are known as *night sweats*. Their occurrence will be found to depend on the temperature, which rises in the evening and drops in the morning. In addition to these there will, of course, be signs of the conditions mentioned above under the modes of onset, such as bronchitis, pleurisy, hæmoptysis, &c. The disease is slowly progressive, and the patient gradually becomes wasted and exhausted, but the existence even of huge cavities in his lungs is not incompatible with life. An extraordinary feature is the optimism of the patient, who will remain hopeful of recovery to the very end. Finally, the most important and only conclusive sign is the presence of tubercle bacilli in the sputum. What are known as the tuber-

culin reactions are helpful, but they are by no means infallible when negative, and a positive reaction is almost valueless (see p. 75).

NURSING.—The first thing for the nurse to remember is that it is not invariably fatal, and that a great number of cases recover. The early cases are naturally more amenable to treatment. She must never forget that patients can be dangerous to others if precautions are



FIG. 55.

not taken in their habits. Thus they should be careful always to spit into suitable flasks or *pocket spittoons* (Fig. 55), which should contain a little carbolic acid, 1 in 20. These flasks must be boiled daily for half an hour in hot

water containing soda. Mugs containing the same disinfectant should be placed by their beds when they are bedridden. Patients should use paper handkerchiefs, which should be burnt immediately after use; these can be procured from any chemist at a cost of about 1s. per 100. A cotton bag should be carried for the purpose of holding the flask and paper handkerchiefs, and this should be boiled daily. A warning should be given not to breathe into other people's faces, and certainly not to kiss. Patients ought to be clean shaven, and their rooms should be devoid of all curtains, antimacassars, and articles which are likely to retain dust and microbes.

Open-air treatment is the only line that offers any hope of success, and it should be carried out no matter how ill the patient may seem to be. It is obvious that open air implies sunlight treatment as well. The patient

should be out the entire twenty-four hours, even if fever or pleurisy is present; it is easy to screen him from the wind and protect him from rain and snow. At the same time it must be remembered that he must be kept warm by means of blankets, or even hot-water bottles. If it is impracticable for the patient to be out-of-doors, then the room in which he sleeps must be as large, well ventilated, and airy as possible. For this purpose the windows should always be widely open. It is not fresh air, but only draughts which do harm. In places where much dirt and fog are to be expected, it is sometimes advisable to stretch a piece of gauze over the aperture of the window.

Sanatoria are institutions for the reception of phthisical patients, where trained doctors and nurses carry out the treatment and diet in the most systematic manner. The question of sending the patient away is bound to be discussed, and the following considerations must always be taken into account. The fatigue of a long railway journey, the discomfort of life in a hotel, and the absence of care and supervision of relatives are great disadvantages. The same objections are valid in the case of a sea voyage, where, in addition, the food and ventilation are not always of the best. In any case the patient should never be sent away if fever or any complication is present, or if he has reached an advanced stage of the disease. If the coast is selected, it must be remembered that some people become very constipated at the seaside.

The following is a list of a few resorts commonly recommended:—Egypt and Algeria, where the air is dry and there is plenty of sunshine and warmth. Slowly progressive cases are the best to select for this climate, although the sand and dust may be found a disadvan-

tage. Switzerland, Black Forest, Tyrol, and the Italian Lakes are of a moderately high altitude, and are favourable to most cases. The value of the resort selected will depend on the warmth and the absence of dust. The presence of pine-trees is valuable, not only from their special fragrance, but also from the shelter which they afford from the winds. Davos, Arosa, the mountains in South Africa, the Rocky Mountains, Andes, &c., which are all of a very high altitude, possess pure dry cold air and abundance of sunshine. These places generally suit most cases, but are not to be recommended for the most acute ones. The higher the altitude, the greater the stimulation to the circulation, respiration, appetite, and digestion. Very strong stimulation may prove too much for weakly individuals, and result in general nervous irritability and sleeplessness.

The invalid should be made to rest entirely until the temperature ceases to be very irregular. In any case where the temperature is above 100° or the pulse above 90, bed should be insisted upon. As improvement takes place, the patient is allowed to get up for a few minutes' slow walking, the length of time being gradually increased whilst a careful watch is kept upon the pulse and temperature. There is no objection to carriage or motor drives. When improvement has reached a certain point, gentle exercise such as golf is permitted, but any strenuous games, such as football, tennis, cycling, &c., are generally contra-indicated, because they cause the two conditions which all consumptives must guard against in their exercises, namely, fatigue and chill. The patient's attitude and manner of walking should be carefully corrected and breathing exercises instituted. There is no objection to a morning bath,

but it should be made tepid or warm if a cold bath is found to be a strain. When the patient is confined to bed, sponging will, of course, take the place of a bath. The clothing worn should preferably be of wool or flannel, but in any case all coddling, such as chest-protectors and overclothing, must be avoided.

Diet.—As far as the digestion and the condition of the patient will allow, the diet should be full and nutritious. The patient is frequently troubled by biliousness or indigestion after fatty food, and more harm than good will ensue from over-feeding or insisting on abundance of fatty foods. In any case, rest for half an hour before and after meals should be a routine practice. It is best to restrict the food to definite fixed meals, breakfast, lunch and dinner, rather than administer small amounts every hour or two. Stimulants should only be given under the doctor's instructions. Eggs and milk, if well borne, can be given freely, and the same is true of such fatty foods as butter, cream, and sardines, always taking care to study the digestion. The patient should be weighed at regular intervals.

THE MEDICAL TREATMENT has in the last few years undergone a great change. Formerly there was no specific treatment, and, beyond the general rules as given above and the treatment of symptoms described below, the only drug used was cod liver oil. The value of this is still uncontested, and it should certainly be given freely when well borne. Tuberculin, as a mode of treatment, has now so thoroughly established itself, that it is essential for a nurse to become *au fait* with some of the details.

Tuberculin Treatment.—Tuberculin consists of an emulsion of tubercle bacilli which is injected into the

skin. The varieties in use are so numerous that it is impossible to describe each one. They are distinguished by definite letters, so that one speaks of Tuberculin O., Tuberculin R., Tuberculin A.F., &c. Exceedingly minute doses are given by means of a hypodermic syringe. During the administration it is important that the nurse should observe four-hourly the temperature, pulse, and respiration of the patient. The point where the injection was made should also be watched, and any change in the pulmonary signs and symptoms should be noted. According to the reaction which takes place, the doctor will vary the length of time before he gives the next hypodermic injection—generally from seven to fourteen days. This line of treatment is not usually carried out in febrile cases. After an injection the patient should always rest entirely for twenty-four hours. If there is much collapse, a saline injection by the rectum may be ordered.

As additional helps in the active treatment against the disease, various drugs, such as friar's balsam, creosote, eucalyptus, iodine, turpentine, &c., can be inhaled through a respirator.

For the pain in the chest, iodine may be painted on the appropriate situation. For the distressing cough which sometimes occurs, the doctor may order heroin or linctus, but such drugs must never be given on the nurse's own responsibility. Night sweats generally disappear if open-air treatment is undertaken, but in any case the patient should wear flannel night-clothes, and may find some relief by being sponged with warm water in which there is a little vinegar. For the other symptoms which may occur, such as diarrhœa, the nurse is referred to the special sections in other chapters.

Every institution, hospital, &c., distributes printed

rules to patients attending with consumption. They all embody the same principles and ideas, and the following will serve as an example:—

PRECAUTIONS TO BE OBSERVED IN NURSING PATIENTS SUFFERING FROM CONSUMPTION.

Consumption, under circumstances favouring its occurrence, such as debility, unsatisfactory hygienic surroundings, &c., is usually spread from one person to another by the sputum (spittle) in the following manner:

1. A consumptive patient coughs up a quantity of liquid in which there are enormous numbers of contaminating germs (*Bacilli tuberculosis*).
2. The liquid or sputum lodges where it is spat, and there dries.
3. When dry it is easily powdered, and when disturbed floats in the air as dust.
4. The specific germs contained in the sputum, though dried, are still living, and able to infect the air in which they float.
5. **This infected air when breathed is liable to cause consumption.**

In order to minimise the risk, the following rules should be **carefully and scrupulously carried out**:

1. The sputum spat by consumptive people should at once be burned by being expectorated into the fire, or, better still, spat into a piece of paper or rag, which should at once be burned.
2. Sputum may, however, be spat into a glass or porcelain vessel containing a disinfecting solution ordered by the doctor, or (if a disinfecting solution cannot be obtained) simply some water. The contents of the vessel should be emptied once, or oftener, a day into the sewer, after which the vessel ought to be kept in boiling water for ten minutes and thoroughly cleaned and then re-charged.
3. All persons affected with a cough which has become chronic should, when attending a workshop, assembly,

or church, spit into a hand-glass spittoon containing such disinfecting solution. These spittoons may be conveniently attached to the person.

4. No person suspected to have consumption should spit into a handkerchief or into a rag, or on cloths, **unless such be forthwith burned.**
5. No person, whether consumptive or not, should spit on to the floor or walls of a room, on the streets, railway carriages, tramcars, or omnibuses.
6. The eating utensils of a person suffering from consumption should be kept separate from the eating utensils of other persons, and should be washed separately from others in boiling water as soon as possible after their use.
7. The clothes of a consumptive person should be washed separately from the clothes of other persons.
8. The bowel discharge of a consumptive person should be disinfected with the disinfecting solution, and linen soiled by them should be at once boiled.
9. Special care should be exercised in destroying the sputum and excreta of a consumptive person.
10. Consumptive persons should be warned against swallowing their phlegm, as by so doing the disease may be conveyed to other parts of their body not already affected.
11. A consumptive person should not kiss or be kissed on the mouth. Children may be infected this way.
12. Keep in the fresh air, light, and sunshine as much as possible.
13. Warm clothing and plenty of good food is essential. Milk should be boiled.
14. Remember **dust is the danger.** Do not chase dust about or stir it up. Use damp dusters, and boil the dirty dusters. Burn the tea leaves used in sweeping.
15. The room of a consumptive patient should, in the event of death, be disinfected, as after death from any other infectious disease; in fact, **consumption should be dealt with exactly as you would deal with any other extremely infectious disease.**

CHAPTER IX

DISEASES OF THE HEART, BLOOD-VESSELS AND BLOOD

The Circulatory Organs.—An apology is perhaps necessary for introducing anatomy into a book on medical nursing, but it is done in order to remind the nurse of the salient features, and so render the description of the diseases more easily understood.

The Heart lies in the centre of the chest slightly to the left side. It is a pear-shaped organ about the size of a clenched fist. The heart contains four chambers, the two above being called respectively the right and left **auricle**, and the two below, the right and left **ventricle**. The apex lies close to the surface, and can be felt beating just internal to and below the left nipple—this is referred to as the apex beat. The blood leaves the heart by the **aorta**, which curves round so as to get close to the spine. It runs down the spine and terminates close to the sacrum by dividing into two arteries known as the **iliacs**, which, continuing as the **femoral arteries**, supply the legs. From the aorta are given off the various branches such as the **carotid**, **subclavian**, &c., which again branch into smaller arteries, and so supply the whole body. All the arteries terminate in minute vessels called **capillaries**, and these again open into the

veins, which bring the blood back to the big main veins known as the **superior and inferior vena cava**, which pour the blood back into the heart. The blood contained in the veins is called **venous** (as opposed to

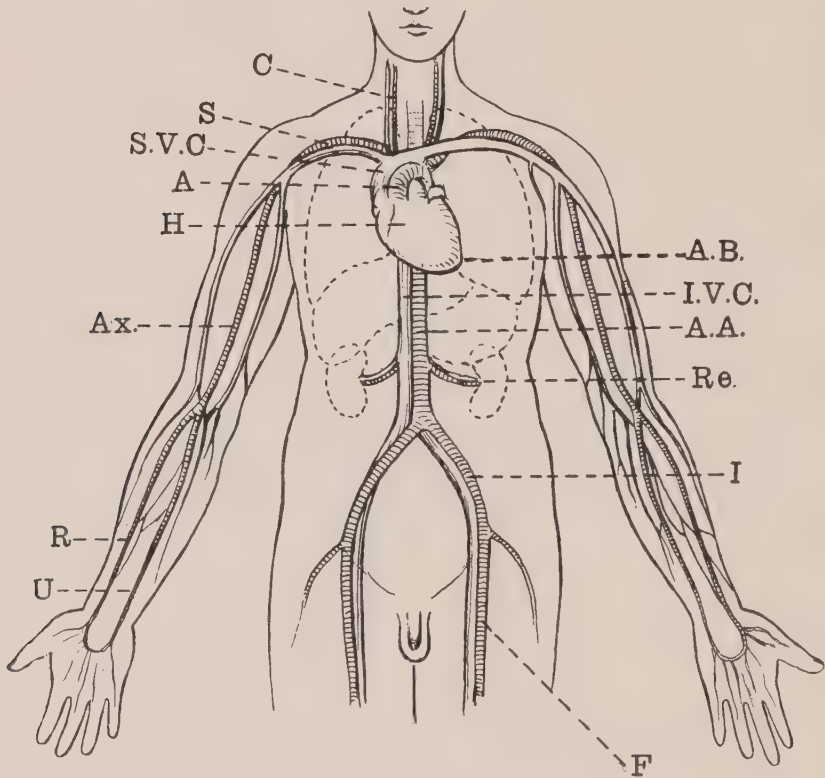


FIG. 56.

C. Carotid Artery. S. Subclavian Artery. S.V.C. Superior Vena Cava. A. The Aorta. H. The Heart. Ax. Axillary Artery. R. Radial Artery. U. Ulnar Artery. A.B. Apex Beat. I.V.C. Inferior Vena Cava. A.A. Abdominal Aorta. Re. Renal Artery. I. Iliac Artery. F. Femoral Artery.

arterial in the arteries), and is darker in colour because the tissues have absorbed the oxygen and given to it carbon dioxide in its place. It is therefore necessary for the heart to purify the blood by oxygenation before sending it again into the aorta. This is achieved in

the following manner. The veins empty into the right **auricle**, which passes the blood along into the right **ventricle** and thence to the **pulmonary artery**, in order to reach the lungs. From the lungs the blood is brought back to the left auricle by the **pulmonary veins**, and thence through the left ventricle it is pumped into the aorta. The heart, like all other organs in the body, has its own blood and nervous supply—the arteries supplying the heart being called the **coronary**.

The first thing that the nurse has to realise is that the term “**Heart Disease**,” which is so common in popular phraseology, is much too indefinite a term for medical purposes. It is therefore important to be more precise when one realises how different in the matter of danger the various diseases may be which might, by extension, be termed “Heart Disease.”

Pericarditis.—By pericarditis is understood inflammation of the lining membrane of the heart.

This commonly occurs in rheumatic fever, tonsillitis, or chorea, but it also occurs in the acute specific fevers, as the result of local injury, and in various other conditions. The pericardium can be inflamed with or without the presence of fluid, the latter variety being known as pericarditis with effusion, and the nature of the effusion can vary, as in pleurisy. Pericarditis is often difficult to diagnose, but if in an attack of rheumatic fever the temperature rises, and there is pain in the region of the heart, then the physician will make an examination to see whether this complication is present.

NURSING.—The patient is, of course, kept absolutely at rest in bed, and the cause is energetically treated.

Locally, iodine blisters or leeches may be applied, whilst drugs are given to help the action of the heart and keep the bowels open. The diet should be light and fairly dry. This line of treatment is undertaken to prevent the accumulation of fluid, and to encourage its absorption if present. The nurse should always have brandy handy in case the heart should suddenly show signs of failing. Should the fluid give no indication of becoming absorbed, blisters are applied, or the doctor may have to draw it off in the manner described under Pleurisy with effusion. When pus is present, it will be necessary to undertake a larger operation and remove a portion of a rib.

Adherent Pericardium.—When a patient has recovered from an attack of pericarditis, the result of the inflammation is to leave it adherent; owing to these lesions the heart has to increase its muscle, or, as it is termed in medicine, hypertrophy, in order to overcome the resistance thus caused.

Valvular Disease of the Heart, or Endocarditis.—Inflammation of the lining membrane inside the heart is known as endocarditis. According to the particular valve affected, we recognise mitral disease and aortic disease. When the mitral valve is diseased so that it cannot close properly, and thus allows some of the blood to flow back, we speak of the condition as **Mitral regurgitation**. **Mitral stenosis** refers to the reverse condition, when the valve is unable to open sufficiently. For similar reasons the names **Aortic regurgitation** and **Aortic stenosis** are used.

It may be useful for the nurse to compare the signs and symptoms present in mitral and aortic disease,

which are, for the purpose of comparison, given in the table below.

Mitral.	Aortic.
1. Generally occurs in young people.	1. More often in old.
2. Usually follows rheumatic fever.	2. Usually follows arterial disease.
3. The patient is blue and cyanosed.	3. The patient is pale and anæmic.
4. Sufferers are troubled at nights by starts and bad dreams.	4. Sufferers are troubled by fainting attacks.
5. The pulse is irregular.	5. The pulse is very forcible.
6. Dropsy and bronchitis occur early when the heart begins to fail.	6. Dropsy and bronchitis occur late when the heart begins to fail.

Endocarditis may be acute or chronic.

The acute variety, according to its severity, is termed simple, and malignant or ulcerative endocarditis.

Cause.—Its causes are the same as those for pericarditis.

SIGNS AND SYMPTOMS.—It gives rise to a very high temperature, rigors, sweats, diarrhœa, occasionally spots on the body and infarcts. *Infarcts* are caused by the blocking of a vessel in any part of the body, so depriving that part of its blood supply. Endocarditis is extremely difficult to diagnose, since it closely resembles many other conditions.

NURSING.—The patient is kept absolutely at rest in bed for a varying time, sometimes as long as three months. Even after leaving bed, he generally has to rest on a couch for perhaps three months longer, and should certainly not undertake strenuous exercise for at least a year. The patient must be kept absolutely

quiet, and away from friends. The specific treatment of the cause, for example, by salicylates, sera or vaccines, is accompanied by cardiac stimulants and the application of blisters or leeches over the heart.

Chronic Endocarditis indicates valvular disease of the heart, following on acute endocarditis.

It is impossible for the nurse to differentiate between the varieties of valvular disease further than has been given above, so that we shall merely describe mitral disease, aortic disease, and congenital heart disease.

Mitral Disease.—This may be regurgitation or stenosis, according to the definition already given. When the heart muscle is sufficiently increased, or, as it is termed, hypertrophied, to overcome the defect in the action of the valves, the heart is said to be hypertrophied, and the signs and symptoms of the patient are very few. During this stage in its worst form there is only slight breathlessness on exertion, and palpitations, but when this compensation fails **heart failure** occurs, and it is then that the advice of the doctor is sought and nursing becomes imperative.

SIGNS AND SYMPTOMS of this condition are as follows. There is œdema of the ankles, which may extend right up the legs. There may be fluid in the peritoneum. The urine is scanty, high-coloured, and contains a lot of urates. The veins in the neck are prominent. The patient is very breathless, and troubled by pain in the region of the heart and palpitations. He finds it impossible to get about, and is often troubled by restlessness, irritability, and sleeplessness.

NURSING.—The nursing of heart failure means that the patient must have absolute rest, and it will frequently be found that he cannot obtain this by lying

down, but that breathing becomes easier and relief is gained by his being propped up in bed with a bed-rest, or by being allowed to sit with his legs over the edge of the bed. A special rest which fits over the bed can be procured, so that the patient can lean his arms upon it on the padded piece in front (Fig. 57). Chairs are also made fitted up with the same contrivance. The doctor will probably order stimulants, such as brandy and drugs, to help the heart's action. Of these, digitalis

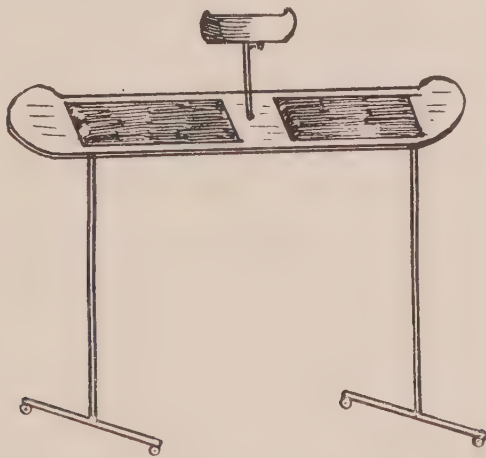


FIG. 57.

is the drug most usually employed (see p. 35). A purge is always administered, so as to deplete the body of as much fluid as possible. Occasionally venesection is performed. The main symptoms requiring treatment are palpitation and cardiac distress. These are often caused by flatulence, and when this has been cured the patient feels relieved. Vomiting and indigestion are combated by ice, champagne, bismuth, &c. The cough, which, it must be remembered, is occasionally accompanied by the spitting of blood, improves as the heart gets better. Sleeplessness will often be remedied by an extra dose of the heart medicine, or by hot whisky and

water. No hypnotics should be given without the doctor's orders.

The amount of urine passed must always be carefully measured by the nurse, and the pulse accurately observed. The œdema is sometimes treated by puncture or Southey's tubes, and the danger of bed-sores, owing to the œdema, must be carefully guarded against.

Restlessness and irritability will tax the nurse's patience to the utmost. She must cheer the patient as much as possible; and it is to be remembered that, in the case of certain forms of valvular disease, patients, by exerting great care, can live to an old age.

Angina Pectoris.—This is characterised by sudden attacks of pain in the region of the heart, radiating down the left arm. During an attack the patient suffers the most excruciating agony, looks extremely anxious, and breaks out into a clammy sweat. He takes short breaths, and groans in the act of so doing.

NURSING.—Experience has taught the patient which is the best position for him to adopt in order to suffer as little pain as possible. This is never the same for two patients, and the first thing the nurse must remember is not to move the patient, but to leave him as he is. A capsule of amyl nitrite should be crushed under his nostrils and the doctor sent for. In between the attacks the nurse should see that the patient never gets excited or angry, and never undertakes any physical strain, whether sudden or prolonged—such as running to catch a train. The diet must be carefully chosen so as to avoid flatulence, indigestion, or constipation. Patients should carry capsules of amyl nitrite in their pockets, and the nurse attending these cases should also have some constantly in her possession.

Fatty Heart.—This generally occurs in fat people, but also in sufferers from anæmia, fevers, &c.

SIGNS AND SYMPTOMS are breathlessness, fainting attacks, and a weak, irregular pulse.

NURSING consists in avoiding too much exercise and regulating the diet so as to prevent flatulence, indigestion, and constipation. The usual cardiac tonics are always employed.

What is known as *Schott's treatment* is the course prescribed at Nauheim in Germany, where the patient is instructed to take baths and perform certain exercises. Another plan of treatment is known as *Oertel's*, and in this graduated exercises on the side of a hill are undertaken, whilst Turkish baths and a special diet are prescribed.

Fainting.—This is the result of a temporary anæmia of the brain. The nursing consists in restoring the amount of blood necessary to overcome this, which is achieved in the following manner. If a patient feels faint, or has actually fainted, the head should be placed between the knees, or he may be laid flat upon the floor. The clothing round the neck should be loosened, and all bystanders should be made to stand well away, so that the patient gets plenty of fresh air. Smelling salts may be applied to the nose, and occasionally a little brandy will assist recovery.

Arterio Sclerosis, or Atheroma.—This is a thickening of the arteries, which is most commonly found in middle-aged people, especially in those in whom a history of alcohol, lead, syphilis, muscular strain or kidney disease is present.

Aneurysm, or a localised dilatation of an artery, generally follows atheroma or injury.

SIGNS AND SYMPTOMS.—The only aneurysm in which we are interested from a medical nursing point of view is that of the aorta. This may lead to the presence of a swelling protruding through the chest wall. There is always pain, difficulty in breathing, and there may be inequalities in the pulses and pupils, and sometimes a curious, brassy cough. It may terminate through bursting, when the patient dies from internal hæmorrhage.

NURSING.—In the treatment of an aneurysm the patient must take as little exercise as possible. The diet should be restricted so that the minimum amount of fluid is ingested. The ideal diet is *Tufnell's*, which consists roughly of $\frac{1}{2}$ lb. of solid and $\frac{1}{2}$ pint of fluid per diem. Purges are given, and potassium iodide is usually ordered. Morphia is necessary for the pain. The danger of the aneurysm bursting must constantly be in the nurse's mind in preventing the patient from any undue exertion.

Anæmia.—This really means pallor, accompanied by certain symptoms as given under Chlorosis, and may be due to disorders of the blood, loss of blood, fevers, poisoning by lead, and so many other conditions that it is correct not to look upon it as a disease itself, but merely as a symptom of one of the above diseases.

Chlorosis.—This is an anæmia occurring in young girls, especially those who are living in unhealthy conditions with very little sunlight and fresh air.

SIGNS AND SYMPTOMS.—The complexion is of a yellowish-green colour. They are troubled by languor, drowsiness, and breathlessness. Headache, dizziness, faintness, and palpitation are often present. Dyspepsia is common, and constipation is almost invariably met

with. The ankles occasionally swell. Either amenorrhœa or scanty menses is present.

NURSING.—The treatment of this condition must be combined with that for acute dyspepsia and constipation (see pp. 121, 127). The tonic which is invaluable for these cases is iron, which may be given in a variety of forms, one of the most usual being Blaud's pill, which is administered three times a day after meals, with a pill containing iron and aloes every night. The diet should be carefully regulated, so that all bitter articles, such as tea, lemons, vinegar, and pickles, are prohibited, whilst the patient should drink plenty of milk, water, and cocoa, and partake largely of green vegetables and fresh fruit. It takes at least six weeks to three months to cure the disease, and, since relapses are common, the patient must take precautions for a long while after an attack is over.

Pernicious Anæmia.—This is an anæmia usually affecting middle-aged men, though either sex is liable to the disease.

SIGNS AND SYMPTOMS.—The complexion is a pale lemon colour. All the signs of anæmia, such as breathlessness, faintness, and palpitations, are present, in addition to which diarrhœa, vomiting, and hæmorrhages may occur.

NURSING.—Treatment consists in putting the patient to bed, and giving him such nourishing articles of diet as raw meat, eggs, and red marrow (see section on Cooking). The mouth should be carefully cleansed. Arsenic is the drug most usually administered.

Leukæmia.—May be of two varieties: (*a*) **Spleno-medullary**, in which there is great enlargement of the spleen, with all the signs of anæmia, and attacks of

hæmorrhage; and (b) **Lymphatic**, in which the lymphatic glands all over the body are enlarged and signs of anæmia are present.

In either variety, febrile attacks can occur from time to time.

NURSING consists of similar management to that given under Pernicious Anæmia; but, in addition, the spleen may be treated by the application of ice-bags, by cold douching, or by X-rays to the left side.

Scurvy.—This is always due to over-crowding, defective hygiene, and improper food. It is characterised by the signs of anæmia, weakness, spongy gums, and a tendency to bleeding, particularly of the mucous membrane.

NURSING consists in the administration of fresh fruit juices, particularly lemon juice, vegetables, raw meat, and fresh milk; the gums may be painted with alum.

Hæmophilia.—Sufferers from this disease are known as bleeders. It runs in certain families, and is transmitted by the females and attacks the males. Bleeding may occur anywhere in the body as the result of the most trivial injuries.

NURSING consists in guarding against such contingencies as the extraction of a tooth or cutting operations, and in applying locally a solution of adrenalin chloride (1 in 1000).

Hodgkins' Disease, or Lymphadenoma.—This is a disease characterised by great enlargement of the lymphatic glands all over the body, which, by their pressure, can cause pain, dropsy, cough, &c. Tuberculosis often supervenes, and the treatment consists merely in fresh air, good food, and tonics.

CHAPTER X

DISEASES OF THE DUCTLESS GLANDS AND CONSTITUTIONAL DISEASES

THE THYROID GLAND

THERE are three important diseases associated with this gland, namely, myxœdema, Graves's disease, and cretinism.

Myxœdema.—This a condition due to insufficient secretion of the thyroid gland. It occurs, as a rule, in middle-aged women. Sufferers always have a characteristic appearance; the face is round or moon-shaped, with a flush on the cheeks and a dull, stupid expression; the hair is dry, and the skin of the hands is coarse. The temperature is subnormal, and the patient feels the cold extremely. She is characteristically very slow in thinking and moving. Occasionally melancholic symptoms are present.

NURSING.—The treatment of this condition is one of the triumphs of medicine, and complete recovery can take place. In addition to warm clothing and a full nitrogenous diet, the patient is given a preparation of thyroid gland. As soon as this is taken improvement commences. The power of thought and action improves; the temperature rises, and the general appearance becomes normal. It is essential to take the drug with intervals of rest during the remainder of life. It

is important for the nurse to watch the effects of taking the gland, as untoward symptoms are liable to appear.

Graves's Disease, or Exophthalmic Goître.—The actual cause of this disease is unknown, but the fault is over-secretion of the thyroid gland. It generally occurs in young females.

SIGNS AND SYMPTOMS.—The eyeballs protrude (exophthalmos), a complete rim of white is visible round the coloured portion of the eye, the eyes do not blink sufficiently, and occasionally a corneal ulcer develops. The thyroid gland is enlarged (goître). The pulse is extremely rapid. Other troublesome symptoms are flushing, sweating, and headache. The hands tremble, the menstrual period may be excessive, and occasionally the skin is pigmented. About 50 per cent. of patients recover from a particular attack, but recurrence is very frequent.

NURSING.—The patient should be made to rest in bed for one or two months, or, better still, should take a long sea voyage. The diet should be nourishing, but it is usual to restrict meat and milk. Occasionally a particular form of diet in which the milk and meat obtained from animals which have had their thyroids removed is ordered. In any case tonics, such as cod liver oil and malt, are useful. Various drugs have their advocates, but none is particularly efficacious. Recently a serum has been tried, whilst locally X-rays will sometimes lead to good results, and in bad cases removal of part of the gland by a surgical operation may be advised. If the heart beats very quickly (tachycardia), an ice-bag may be placed over the precordium and bromides administered internally. The patient must be warmly clad, for she is extremely liable

to colds, pneumonia, and pulmonary tuberculosis. Sometimes attacks of dyspnœa of an alarming character occur.

Cretinism.—This is a disease of childhood which is generally not noticed until the child is about two years of age, although it may be observed at birth. The child's head is slightly larger than normal, the nose is flattened, the tongue protrudes, and there is a constant dribble of saliva. The hair is coarse, and the expression stupid. The child is stunted in development, and slow in speaking, walking, &c.

NURSING consists in keeping the child warm (for it feels the cold acutely), in giving a liberal diet, and in administering extract of thyroid gland. Some children react very readily to this drug. During the treatment, as in the case of myxœdema, it is important to watch for signs of poisoning (see p. 37).

SUPRARENAL GLANDS

Addison's Disease.—This is the only disease of importance associated with these glands. It occurs at any age, and is generally due to tuberculosis of the glands.

SIGNS AND SYMPTOMS.—The patient is very pigmented, and in bad cases the skin appears brownish-black, especially on the exposed parts of the body, where pressure occurs (*e.g.* from garters, braces), and in the mouth, axilla, scrotum, &c. The symptoms are great weakness, vomiting, and diarrhœa.

NURSING consists in rest, with a nourishing diet, and the administration of tonics. The lack of appetite from which these patients suffer will sometimes prove ex-

ceedingly troublesome, and tax the resourcefulness of the nurse to provide palatable dishes.

PITUITARY BODY

Acromegaly.—This is due to excessive secretion of the pituitary gland.

SIGNS AND SYMPTOMS.—There is great enlargement of the lower jaw, splaying out of the hands and feet, with enlargement of the fingers and toes. Headache and eye symptoms are also present.

NURSING yields at present very unsatisfactory results. Extracts from the ductless glands may be tried.

CONSTITUTIONAL DISEASES

Gout.—This is a disease characterised by attacks of acute pain in the big-toe joint, which generally occur at night. It is most frequently met with in middle-aged men, particularly in those who have indulged to excess in alcohol, but other factors predispose to this condition; for example heredity, and working in lead. The following varieties of the disease are recognised: Acute, chronic, suppressed, and irregular gout.

Acute Gout.—The typical form is when severe pain in the big-toe joint or occasionally elsewhere suddenly occurs in the early hours of the morning. The joint is hot, painful, tender, and red. A little fever is present; the urine is scanty and full of urates. The acute attack lasts about a week.

Chronic Gout causes deformities in the joints of the hands and feet. Nodules known as *tophi* are found in the neighbourhood of the joints and in the cartilage of the ear. These tophi are often very painful, and may

ulcerate through, forming the so-called "chalk stones." Arterial and kidney disease are frequently present.

Suppressed Gout is the name given to the occurrence of symptoms, such as dyspepsia with vomiting and diarrhœa, cardiac distress, or cerebral trouble, such as delirium, which take the place of an acute attack in chronic sufferers from gout.

Irregular Gout is a term used for such varied manifestations as eczema, biliousness, constipation, migraine, sciatica, bronchitis, asthma, cystitis, eye troubles, arterial, kidney and heart disease, when these occur in a relation of a sufferer from gout—that is to say, in one in whom the gouty tendency may presumably be present and account for these symptoms.

NURSING DURING AN ACUTE ATTACK.—The patient must be kept in bed, and the nurse must remember that sufferers are often extremely irritable, and not only will they resent the slightest touch to the affected part, but they dread any movement of the nurse in its neighbourhood. The diet should consist solely of milk and milky foods such as arrowroot, rice, tapioca, whilst no meat, beef teas, broths or soups, are to be allowed. Alkaline water, lithium, potassium, &c., may be drunk. The doctor will probably order some calomel, to be followed by Epsom salts, and then prescribe a mixture containing colchicum, which will be found the most efficacious drug in this disease. Locally, the foot must be raised, and a piece of lint soaked in *Lotio plumbi cum opio* applied to the joint. On no account should hot or very cold applications be used.

THE NURSING OF CHRONIC CASES consists in seeing that the patient leads an open-air life with a moderate

amount of exercise. He is frequently ordered to spas, such as Bath, Buxton, Harrogate, Aix-les-Bains, Carlsbad, or Baden-Baden. The diet must be regulated so as to avoid nitrogenous foods and sweets as far as possible. Therefore meat of all kinds should only be taken in moderation. Very little alcohol should be allowed; the least harmful varieties are light dry sherry and weak whisky and water. The bowels must be kept regularly opened.

The local treatment of chronic gouty joints consists in the application of salt packs (see Chapter IV), in massage or electricity.

DIETARY.—The following dietary as advised by Luff will prove of service to the nurse:

Articles of Diet that should be avoided by Gouty Subjects.—Rich meat soups, oxtail, turtle, mock turtle, kidney, mulligatawny, hare, giblet. Salmon, mackerel, eels, lobster, crab, mussels, salted fish, smoked fish, preserved fish, tinned fish. Duck, goose, pigeon, high game. Twice-cooked meats, hare, venison, pork, lean ham, sweetbread, liver, kidney, salted, corned or cured meats, pickled meats, preserved and potted meats, sausages. All articles of food pickled in vinegar. All highly-seasoned dishes and rich sauces. Tomatoes, beetroot, cucumber, rhubarb, mushrooms, truffles. Rich pastry, rich sweets, new bread, cakes, nuts, dried fruits, ices, ice-cream.

Diet suitable in Chronic Gout and for Gouty Subjects.—*Morning*—Half a pint to a pint of hot water, flavoured with a slice of lemon-peel, should be slowly sipped on rising.

Breakfast—A selection may be made from the following articles of diet, according to the taste of the patient: Porridge and milk, whiting, sole, or plaice,

fat bacon, eggs cooked in various ways, dry toast or "zwieback bread" thinly buttered, and tea infused for three minutes and then strained from the leaves. Fat bacon is digestible when grilled, less so when boiled. Eggs should not be taken hard-boiled.

Lunch and Dinner—Soups suitable for the gouty are vegetable purées and soups made by boiling beef bones or mutton bones with vegetables, subsequently removing the fat which separates on cooling. These soups should not be thickened with farinaceous substances.

The varieties of fish most suitable to the gouty are whiting, sole, turbot, plaice, smelt, flounder, grey mullet, and fresh haddock.

The birds that are admissible as articles of diet are chicken, pheasant, turkey, and game (not high).

Butcher's meat—mutton, lamb, and beef—should be taken at only one meal in the day, and then in moderate quantities. Two vegetables may be taken at both lunch and dinner. Any of the ordinary vegetables may be taken except those previously mentioned as best avoided; but those which are most likely to prove beneficial to gouty subjects are spinach, Brussels sprouts, French beans, winter cabbage, Savoy cabbage, turnip tops, turnips, and celery. Potatoes may also be taken in moderate quantities. Stewed fruits or baked apples or pears may be taken every day at one meal.

Green vegetables such as salads are permitted, provided oily dressings are avoided. A simple savoury may be allowed at the end of dinner, or a small quantity of mild cheese, which must be well masticated.

Night—Half a pint to a pint of hot water, flavoured with a slice of lemon-peel, should be slowly sipped before retiring to bed.

Arthritis Deformans.—So many names are given to this disease, that the heading could very well have occupied several lines. The one chosen is the least controversial and the most embracing. Various deformities of the joints are known as rheumatoid arthritis, osteo arthritis, gouty arthritis, rheumatic gout, and chronic rheumatic arthritis. Of these we shall consider only the first two. For the purposes of comparison it will perhaps be clearer to enumerate the signs and symptoms of both in tabulated form :

Rheumatoid Arthritis.

1. Occurs at any age from 25 to 40.
2. Frequently associated with septic gums and decayed teeth (pyorrhœa alveolaris), which presumably have a causal relationship.
3. Several joints are affected. They are tender, swollen, painful, and the overlying skin is shiny. The joints are fusiform in shape.
4. The patient is anæmic, and slight fever may be present.
5. Eventually the joints become very stiff, and creak when moved, and lead to great deformity. The muscles in the neighbourhood of the joints waste considerably.
6. Differs from rheumatism in the feature that joints are not successively attacked.

Osteo Arthritis.

- Always attacks old people.
- No such association is present.
- The joints are gnarled, twisted, and lumpy in appearance.
- No such conditions are necessarily present.
- The deformity is extremely great, and the joints may become fixed and immobile.

NURSING.—It is important that the patient should be urged to move the affected joints as far as possible,

otherwise they may become stiff through disuse. Spa treatment, such as recommended under Gout, always improves these cases. The nurse should carefully regulate the cleansing of the teeth. Many drugs, such as aspirin, salicylates, potassium iodide, and guaiacol carbonate are frequently used. Local treatment consists in painting the joints with iodine and rubbing them with Linimentum pot. iod. cum sapone. The application of hot salt or sandbags sometimes eases the pain, or great comfort may be derived from soaking the joints in hot soda baths, which are prepared by adding an ounce of washing soda to each gallon of hot water. Hot air baths, electricity and radium are sometimes of service.

Obesity.—The nurse should see that the patient takes a fair amount of exercise, or if this should be impossible, massage must be substituted, but only on the doctor's orders. Residence at certain spas, such as Carlsbad, Homberg, or Marienbad, will only be of value if the patient follows out a regimen prescribed by the medical attendant. In no disease is the exact observation of diet of greater importance. Particularly should fat and sweet foods be avoided. Many varying systems of diet have been drawn up by various people, and called by the name of their originator (*e.g.* Banting's, and Salisbury's). It is obviously outside the scope of this book to quote them in detail, since the doctor will prescribe the diet carefully, according to the particular case. The following dietary will give the nurse some idea as to what is suitable and what is unsuitable in these cases.

The patient may take: Clear soups in small quantities, gluten or almond bread, dry bread, toast and crusts,

Calari biscuits, butter, boiled fresh fish, lean beef, mutton or lamb, poultry, game in moderation, eggs, boiled or poached, spinach, cauliflower, cabbage, onions, cresses, celery, tomatoes, radishes, olives, ripe fruits, junket or custard, milk in moderation with Vichy or other aerated water, a little claret, Hock, Chablis or whisky, tea and coffee without milk, and flavoured with saccharine instead of sugar.

He may not take: Thick soups, salmon, eels, pork and veal, re-cooked meats, duck, goose, fats, potatoes, rice, tapioca, macaroni, arrowroot, sago, porridge, peas, beans, carrots, turnips, beetroot, parsnips, puddings, pastry, sweets, cakes, crystallised fruits, milk, cream, cocoa, ales, stout, ginger beer, sherry, champagne, port, and liqueurs.

The drug most frequently used for this disease is extract of thyroid gland, and, as already stated, the nurse should carefully watch its effect. On no account should the patent medicines which are extensively advertised for this condition be administered. At their best they are useless, at their worst they are unquestionably dangerous.

Diabetes.—Two varieties are recognised — diabetes insipidus and diabetes mellitus.

Diabetes Insipidus can occur at any age, and is a disease in which large quantities of urine containing no sugar are passed. The cause is quite unknown, but is probably dependent on the nervous system.

SIGNS AND SYMPTOMS.—It usually comes on gradually, but occasionally it arises suddenly. There is great thirst and the passage of large quantities of urine, which on examination is found to have a very low specific gravity and to be free from sugar. The patient loses

weight, gets weak, and is often very irritable and melancholy. There is a particular susceptibility to affections of the lung.

NURSING.—It is useless to attempt to restrict the amount of fluid which the patient drinks. He should be made to rest longer than usual every day, and his diet must be free from salt. The outlook is not serious.

Diabetes Mellitus is a disease in which there are great thirst, extreme wasting, and the passage of large quantities of urine of a high specific gravity, containing sugar. When the case is progressing badly, the urine also contains diacetic acid and acetone. Excessive hunger may also be present, but the popular distinction between “eating diabetes” and “drinking diabetes” is unfounded, since the two are always associated. Diabetic patients are particularly liable to boils, pruritus or itching of the private parts, and to affections of the lung, such as pneumonia or phthisis. They are also usually irritable, and may be restless or depressed. By far the greatest number die in what is known as diabetic coma, which may be brought on by over-exertion or some complication. The nurse must be on the look-out for such premonitory symptoms as vomiting, constipation, or the presence of acetone or diacetic acid in the urine. When once coma sets in, the patient breathes in a curious gasping manner, and the breath has a characteristic sweet smell, similar to that of ripe apples. Coma is invariably fatal.

NURSING consists in seeing that the patient avoids all mental and physical strain. He should be warmly clad, and take every precaution against exposure to cold. There is no disease in which strict adherence to

the prescribed diet must be so rigidly enforced. The following diet sheet will prove of use to the nurse.

The diabetic patient may not eat: Sugar or starch in any form (nowadays the restriction of starch is not rigidly maintained); bread of any kind and in any form; farinaceous preparations—rice, arrowroot, sago, tapioca. Potatoes, carrots, parsnips, turnips, artichokes, beetroot, tomatoes, peas, and beans; fruit of any kind, fresh or preserved; liver, oysters, crabs, lobsters—because liver contains glycogen; milk, except in small quantities.

He may not drink: Beer, sweet or sparkling wines or liqueurs, lemonade or any sweetened aerated drinks.

He may eat: Butcher's meat, ham, bacon, tongue, poultry, game, fish of all kinds. Eggs, cheese, butter, and cream. Real turtle, mock turtle, and oxtail soups, beef tea, broth, essence of beef, mutton or chicken, meat juice, *but no thickening may be used with any of these.* Spinach, watercress, mustard and cress, lettuce, mushrooms, cucumber, cabbage, asparagus, endive. Blancmange made with cream, not milk, custard, nuts, jelly, oranges. The substitutes for bread, such as gluten, soya, protein and almond bread; but many of the so-called "diabetic breads" contain a large percentage of starch; they should be tested with iodine before being allowed.¹ Special diabetic preparations, *e.g.* marmalade made with saccharine; and saccharine must be used instead of sugar.

He may drink: Tea, coffee, cocoa from nibs, milk in small quantity, mineral waters, dry sherry, claret, Sauterne, Burgundy, Chablis, Hock, old whisky.

As the condition improves, the list of forbidden ali-

¹ When any preparation containing iodine is poured upon bread, a blue colour will appear if starch is present.

ments may be gradually diminished. The first advance is the inclusion of lævulose, then lactose, then potatoes.

Recently Van Noorden has suggested a dietary which consists in a patient for six days taking the special food mentioned in the diet sheet overleaf. On the first and second days he lives practically on vegetables, on the third and fourth days he is put upon either the oatmeal or potato dietary, and on the fifth and sixth days he returns to the vegetable dietary. The sugar in the urine is greatly diminished at the end of this time. He then returns to the ordinary diabetic diet to undertake a week of Van Noorden's again after a month or so has elapsed.

The drugs used are generally one of the preparations of opium, codeine, &c. The urine must be carefully tested every day. Constipation should be appropriately treated. For the itching in private parts, Unguentum boracis and Unguentum acidi carbolici may be used. Women should be instructed to sponge the vulva with a boracic solution after micturition. Coma may be treated by alkaline saline infusions and brandy, ammonia, and hot-water bottles should be got ready in case of collapse. The doctor may give a hypodermic injection of strychnine. The younger the patient, the worse is the prospect of cure. Older subjects may live for many years.

VAN NOORDEN DIET SHEET.

GREEN VEGETABLE DAYS.	POTATO DAYS.	OATMEAL DAYS.
<p><i>Breakfast.</i> Coffee. Scrambled eggs (2). Butter (20 grammes).</p>	<p><i>Breakfast.</i> Coffee. Scrambled egg (1). Potatoes (250 grammes). Butter (50 grammes, 10 grammes to scramble egg, 40 grammes in potato).</p>	<p><i>Breakfast.</i> Coffee. Scrambled egg (1). Porridge (5th part). Butter (40 grammes, 10 grammes to scramble egg, 30 grammes in porridge).</p>
<p><i>Lunch.</i> Tea. Beaten egg (1). Lettuce (30 grammes).</p>	<p><i>Lunch.</i> Tea. Beaten egg (1).</p>	<p><i>Lunch.</i> Tea. Beaten egg (1). Porridge (5th part). Butter (40 grammes). Oatmeal biscuits (3).</p>
<p><i>Dinner.</i> Veal broth (cc. 300). Greens (150 grammes). Butter (30 grammes).</p>	<p><i>Dinner.</i> Coffee. Beaten egg (1). Potatoes (335 grammes). Butter (100 grammes).</p>	<p><i>Dinner.</i> Coffee. Beaten egg (1). Porridge (5th part). Butter (40 grammes). Oatmeal biscuits (3).</p>
<p><i>Tea.</i> Coffee. Scrambled eggs (2). Butter (20 grammes). Lettuce (30 grammes).</p>	<p><i>Tea.</i> Tea. Scrambled egg (1). Butter (10 grammes).</p>	<p><i>Tea.</i> Tea. Beaten egg (1). Porridge (5th part). Butter (40 grammes). Biscuits (3).</p>
<p><i>Supper.</i> Veal broth (cc. 300). Greens (150 grammes). Butter (30 grammes).</p>	<p><i>Supper.</i> Tea. Beaten egg (1). Potatoes (250 grammes). Butter (40 grammes).</p>	<p><i>Supper.</i> Tea. Scrambled egg (1). Porridge (5th part). Butter (40 grammes). Oatmeal biscuits (3).</p>
<p><i>Total Quantities.</i> Veal broth, cc. 600. Lettuce, 60 grammes. Greens, 300 grammes. Butter, 100 grammes. Eggs, 5. Coffee, tea, water } <i>ad lib.</i> and lemonade }</p>	<p><i>Total Quantities.</i> Potatoes, 835 grammes. Butter, 300 grammes. Eggs, 5. Coffee, tea, water } <i>ad lib.</i> and lemonade }</p>	<p><i>Total Quantities.</i> Coarse oatmeal (raw), 250 grammes. Eggs, 5. Butter, 300 grammes. Oatmeal biscuits, 12. Coffee, tea, water } <i>ad lib.</i> and lemonade }</p>

Milk is not allowed in tea or coffee.

Saccharine if desired.

CHAPTER XI

DISEASES OF THE NERVOUS SYSTEM

The Nervous System.—As has already been stated, this book is in no wise an anatomy book, and the following description of the accompanying diagram (Fig. 58) will serve merely as a reminder to the nurse.

The Meninges are the coverings of the brain and spinal cord, and are three in number, being called respectively the **Pia**, **Arachnoid**, and **Dura mater**.

The Brain is composed of a **Cerebrum** and a **Cerebellum**, which are joined to the **Pons** and **Medulla**. The latter in its turn is attached to the **Spinal Cord**, which traverses the whole length of the spinal column.

The outer surface of the brain is covered by a number of folds known as **convolutions**, and has in its interior cavities which are called **ventricles**.

The cerebrum and cerebellum are divided by a median line of division into two halves, each half being described as the right or left **hemisphere**. From the brain the twelve cranial nerves, which are called respectively the 1st, 2nd, 3rd, &c., leave on each side to supply the muscles and convey the sensations of the head, face, nose, eyes, and ears. From the spinal cord the **motor** nerves (or nerves to muscles) and **sensory** nerves (or nerves conveying sensation) arise, and are distributed all over the trunk and limbs.

A great deal of what is necessary for the nurse to know in nervous diseases consists in understanding the

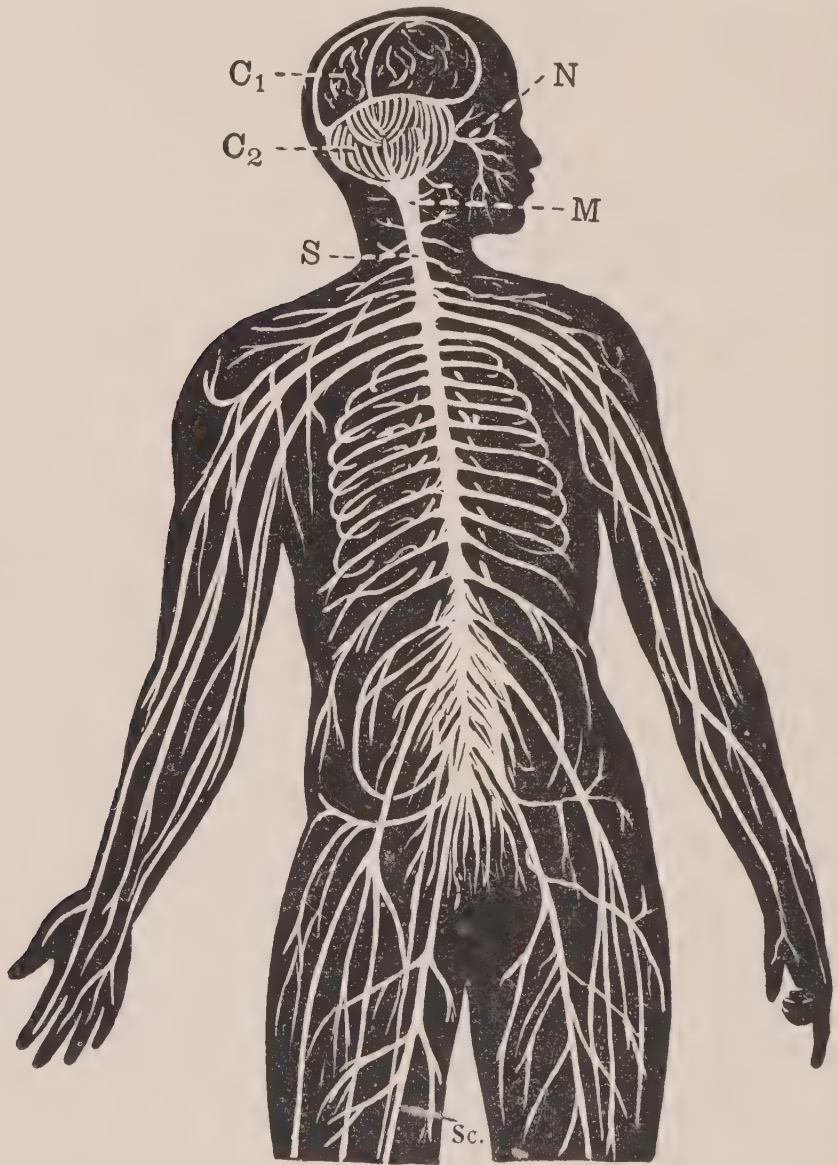


FIG. 58.

C₁. Cerebrum. C₂. Cerebellum. N. Seventh Nerve. M. Pons and Medulla. S. Spinal Cord giving off the Spinal Nerves to supply the trunk and limbs. Sc. Sciatic Nerve.

meaning of the technical terms used. The treatment for the various diseases is to a large extent similar, and,

unfortunately, can only be directed more towards the symptoms than the cause. In order to prevent constant repetition, the nurse will be well advised to learn the following definitions:

Paralysis means complete loss of power in some or all of the muscles either of one or more limbs.

Paresis means partial, but not complete, paralysis.

Hemiplegia means paralysis of one half of the body, the face, arm, and leg of one side.

Paraplegia means paralysis of both legs.

Diplegia means paralysis of both arms and both legs.

Inco-ordination means irregular movements of the limbs, leading, in the case of the legs, to a staggering gait known as **ataxia**.

Romberg's sign is the inability to stand with the eyes closed and the toes and heels touching.

Anæsthesia is inability to feel a touch—in other words, numbness.

Hyperæsthesia is undue sensitiveness to touch.

Analgesia is inability to feel painful sensations.

Reflexes are the responses which occur when muscles are stimulated by tapping. The commonest reflexes tested are: (1) *Knee jerks*. Normally when the knee is tapped just below the kneecap, the leg jerks upwards. Absence or marked increase of this movement is evidence of disease. (2) *Ankle clonus*, which consists in rapid contractions of the calf muscles when the foot is sharply flexed at the ankle joint. Ankle clonus is found only when the knee jerk is increased.

Babinski's sign.—When the plantar surface of the foot is stroked, the big toe normally bends downwards,

but in certain conditions of disease of the nervous system it will bend upwards, the latter movement being known as Babinski's sign.

It is unnecessary for the nurse to learn the other reflexes, such as *abdominal*, *jaw*, &c.

Spasticity means stiffness of the legs, with increase of the knee jerks, and the limbs are said to be **Spastic**.

Kernig's sign occurs in meningitis, and is a resistance on the part of the patient to the straightening of his leg when his thigh is flexed upon the abdomen.

Reaction of Degeneration, or R. D., as it is more commonly referred to for the sake of brevity, is discovered by testing the muscles by means of galvanic and faradic currents.

Vertigo means giddiness.

Coma means unconsciousness. It may occur in acute specific fevers, from injury to the skull and other brain lesions, epilepsy, after taking opium, alcohol, &c., or in uræmia, eclampsia, or diabetes.

There are one or two points in the treatment of nervous diseases which demand special emphasis. A water-bed is generally essential. Draw sheets, preferably made of thick Bolton sheeting, which is more absorbent and less chilly than linen or calico, placed over a mackintosh are indispensable in cases of incontinence. Patients suffering from any form of nervous disease are particularly liable to bed sores, and in addition to carrying out the treatment on p. 17, the following hint will prove of service. A piece of soft calico or linen is stitched together to form a hollow ring, and stuffed with tow or cotton-wool. Such prominent parts of the body as the heels and shoulder-

blades are then arranged so that they fit into the cavity of the rings. The greatest precautions must be observed with regard to the use of hot-water bottles. If anæsthesia is present, the patient cannot feel the heat, and, if care is not exercised to avoid applying too hot bottles, bad burns frequently result, which take a very long time to heal.

Electrical Treatment.—During the last ten years electricity in its various forms as a means of medical treatment has been brought so prominently before the public that it is advisable for a nurse to have at least a passing knowledge of its application. Many branches of electrical treatment, *i.e.* static, X-rays, high frequency, sinusoidal, ionisation and diathermy involve the use of such powerful currents and elaborate apparatus that very special knowledge is required if the treatment is to be administered with benefit or even safety. They are quite beyond the province of the nurse, and any description of them is outside the scope of this work.

Electrical treatment may be galvanic, which is a continuous current, or faradic, which is interrupted. A sinusoidal or particular form of interrupted current is also used for electric baths.

One convenient and easily controlled electrical treatment is that of the mild **faradic stimulation** of the muscles, and this can be easily applied by the nurse. Moreover, the treatment to be effective has to be given every day for weeks, months, or even years at a time, and so readily falls under the routine duties of the nurse or attendant. All the apparatus required is (1) a dry cell battery similar to that used for electric bells, (2) a small induction coil, (3) two or three electrodes

and six feet of fine insulated wire. Although the connecting up of the battery coil and electrodes can be done and demonstrated in a few seconds in actual practice, a description on paper of the process would be lengthy, and even then easily misunderstood; if the nurse gets the physician in charge to show her what is needful the first time, she will easily be able to set the apparatus working on future occasions.

We will suppose that the battery has been connected to the primary of the coil, this set working, and the two leads or wires coming off from the secondary circuit of the coil attached. The current is now passing through these two wires, and if one is grasped in each hand the well-known tingling of the "electric shock" will be felt. In applying it to the patient, however, the ends of the wires are always joined up to "electrodes"; one of these is usually a lead plate about six inches square covered with lint or flannel. This is moistened in warm water and applied to the patient's body in some convenient position, nearly always the lumbar or sacral region. The other pole or electrode is a small metal disc moulded on a handle and also covered with lint. It is damped, and passed by the nurse up and down the part of the body it is required to treat. The current should be made as strong as the patient can bear, and applied for 5 to 30 minutes at a time.

When an **electric bath** is ordered, the patient is either totally immersed or places his limb in an earthenware or porcelain bath. The wires leading from the switch-board end in large copper plates (electrodes), which are placed one at the head and one at the foot of the bath. They are sometimes covered with rubber to prevent the patient's direct contact with the metal. The bath, having been filled with water, is kept at a temperature

of body heat—a bath thermometer is required. The patient gets into the bath before the current is started. The current is turned on in a *gradual* manner so that the patient experiences no shock. The amount of current is regulated according to the feelings of the patient, and the nurse is able to keep it at the same strength by observing the ammeter on the switchboard. After ten or fifteen minutes the current is *gradually* turned off, the patient is dried, and after resting for a quarter of an hour may go home. An electric bath should never be administered immediately after a meal, and the current should never be run through the patient before the nurse has tried it on herself. Baths are given two or three times a week for about a month or six weeks. A variant of this method is to place the limb, for example a leg, in a large earthenware bath filled with warm water. The flat electrode is now bandaged round the patient's knee, and the nurse slowly dips the other electrode in and out of the water at about forty times a minute. The current will then flow through all the nerves and muscles of the leg, causing them to contract while it is passing.

Ionisation is a method by means of which drugs are supposed to pervade the skin, and is generally used for arthritis. The joint may be immersed in a 2 per cent. solution of sodium chloride, or lint saturated in this solution may be wrapped round the joint. Tin foil is then bound round over this, and connected by a wire to the battery. If the limb is in the bath the wire simply leads from the solution. The other electrode can be similarly wrapped round the joint or immersed in the water. The remaining details are carried out as in an electric bath. The treatment lasts about half an hour.

Meningitis means inflammation of the meninges (the covering of the brain). According to its cause, it is known as tuberculous meningitis, septic meningitis, &c.

Septic Meningitis is due to injury, pyæmia or middle ear disease.

Cerebro-Spinal Meningitis, or spotted fever, is due to a special microbe, and appears to be contagious to a slight extent. It may vary in its virulence, so that in addition to the ordinary type there may be mild or malignant attacks.

Post-basis Meningitis is a form very similar to the last described, which is, in fact, considered by some to be due to the same organism.

Tuberculous Meningitis occurs when there is some tuberculous lesion elsewhere, *e.g.* in the bronchial glands, even though not apparent.

Since the nursing in all forms of meningitis is similar, it is not necessary to describe in detail the differentiating points, this being more a matter for the doctor's consideration, but the nurse must know the following features which are present in all varieties of meningitis, so that she may recognise the disease.

SIGNS AND SYMPTOMS.—It may begin with a convulsion or a rigor. Headache, and even delirium, may be present. Vomiting and constipation are constant. In children the anterior fontanelle bulges. The child objects to its head being moved, and as the disease progresses its head becomes drawn back and the spine so arched, that in severe cases the head may touch the heels. A squint is often present, and the child may screw up his eyes to avoid the light. Convulsions are common, and Kernig's sign (see p. 194) is generally present. The child may scream in a per-

sistent manner (*hydrocephalic* or *meningeal* cry). The temperature is usually raised, except in the beginning of tuberculous meningitis. The pulse and respirations are rapid. In cerebro-spinal meningitis spots appear over the body. Finally the patient becomes drowsy and unconscious. The doctor is extremely likely to perform lumbar puncture.

NURSING.—The patient must be put into an absolutely quiet room. It may be necessary to cut off the hair and place an ice-bag over the head; Leiter's coil or leeches may be substituted. Nasal feeding may be required. A purge may be ordered. When the temperature is high, sponging will be necessary. Bromides are frequently ordered, and lumbar puncture at intervals is often performed. The urine must be carefully tested each day for albumen or sugar. Finally, the nurse must remember that these cases are extremely serious and the majority die.

Cerebral Hæmorrhage, or Apoplexy.—This means bleeding from a vessel in the brain. It may occur at any age, but most usually after forty. When a person is stated to have had a "stroke," or a "seizure," or an "attack of apoplexy," or an "apoplectic fit," they all mean that cerebral hæmorrhage has occurred, and are synonymous words.

SIGNS AND SYMPTOMS.—It begins suddenly, so that the patient falls to the ground unconscious. At the beginning of the attack, one side of the body may twitch, but later it is found that half the body is paralysed. The eyes are turned to one side. Urine and fæces are passed unconsciously. The breathing is noisy (*stertorous*), and the pulse is full and slow. Recovery is marked by a rise of temperature, with

gradual disappearance of the paralysis. The face generally recovers first, then the legs, and lastly the arms. In many cases complete recovery does not take place, and some degree of permanent paralysis remains. A similar condition to the above may occur in malignant endocarditis, when a small clot lodges in a vessel of the brain—this is known as **cerebral embolism**. **Thrombosis**, or stoppage of the blood stream in cerebral vessels, will also lead to signs and symptoms indistinguishable from the above.

NURSING.—The first point the nurse must note is that the patient should on no account be moved more than is unavoidable. It is absolutely wrong to drag an unconscious patient up several flights of stairs to the bedroom. A bed should be made up on the floor as well as circumstances permit. The clothing round the neck should be loosened so that breathing is unimpaired, and the nurse should not remove his clothing if this necessitates much disturbance before the doctor has seen him. The lower garments can be slipped off easily, and cushions, or even a mattress, placed under the patient. When it is possible, he must be put carefully to bed, preferably on a water-bed, with hot-water bottles close, but not too near, to his feet. An ice-bag is placed over his head, which may be slightly raised and turned on one side to allow the saliva to be swallowed. On no account should alcohol or brandy be given. The doctor will probably order croton oil, calomel, or other purge. Venesection is occasionally performed. The patient will be kept in bed for at least fourteen days, and probably longer. The nurse must exercise great care in the prevention of bed-sores, which are very likely to occur (see pp. 17, 194). Massage and electrical treatment are very gradually introduced

a few days before he is allowed to get up. The urine must be carefully examined daily. The patient should be kept as quiet as possible, and on no account be permitted to get excited or make any effort involving the slightest strain, for there is always the danger of a second hæmorrhage occurring.

Abscess or Tumour of the Brain.—Since the nursing of these cases is essentially surgical, the nurse is referred to a surgical book for details.

Myelitis, or inflammation of the spinal cord, may be acute or chronic. It is characterised by paralysis and anæsthesia of the body below the lesion. Patients are extremely likely to develop bronchitis, cystitis, or bed-sores.

NURSING.—Consists in placing the patient on a water-bed, and moving him with the greatest care in order to prevent the formation of bed-sores (see pp. 17, 194). Retention of urine may be present, and may necessitate the regular passage of a catheter, in the use of which scrupulous cleanliness must be observed. Later, as the patient improves in health, the doctor will prescribe tonics, massage, and electricity.

Infantile Paralysis (or Acute Anterior Poliomyelitis).

SIGNS AND SYMPTOMS.—The microbe of this has not yet been discovered. The disease generally occurs in children, and is extremely difficult to diagnose in the early stages, as there may perhaps be only slight fever, and little, if any, pain in a limb. It is, therefore, often concluded that the child is suffering from some dyspeptic trouble, teething, or other simple childish ailment, but after three days it is found that the child has lost

the use of one or more of its limbs, and cries when the paralysed part is touched. After several months the limbs begin to develop the characteristics which will persist for the remainder of the patient's life. The limb is ill-developed, cold, and blue, and after a time may assume a deformed position through contractions.

NURSING.—At first the patient is treated as for any other fever, being kept in bed on a fluid diet, and if the limb is painful it is wrapped in cotton-wool. Later, as the limb becomes less painful, salt-water baths, massage, and friction should be begun. Galvanism will also probably be ordered, and tonics, including cod liver oil, are administered. Splints are applied early, in order to prevent the occurrence of deformities.

Progressive Muscular Atrophy is a condition in which the muscles all over the body gradually waste. It lasts for many years, and the nursing does not call for any special mention.

Bulbar Palsy is caused by wasting of the muscles round the mouth and throat, so that swallowing is impaired. Here, again, the nursing does not require special description.

Locomotor Ataxia (Tabes dorsalis).—This condition is frequently referred to simply as "Tabes." It generally appears between the ages of thirty to forty, and usually follows (several years after) an attack of syphilis.

SIGNS AND SYMPTOMS.—When the disease is well developed, the patient complains of severe pains in the legs, known as "lightning pains." Numbness of the feet is also present, so that the patient seems to be walking on cotton-wool. The knee jerks are lost, and

the pupils display the Argyll Robertson reaction—that is, failure to contract when exposed to light. The Wassermann reaction is positive. The patient walks in a peculiar manner, with what is known as an ataxic gait. Romberg's sign is present.

Perforating ulcers of the feet, a disease of the joint known as *Charcot*, and many other complications, may be present, for details of which the nurse is referred to a text-book of medicine. The disease may last for many years, but recovery never occurs.

NURSING consists in seeing that the patient leads a quiet orderly life, and does not indulge in excesses of any kind. Owing to their liability, care must be taken to obviate urinary troubles, prevent fractures, &c., to which there is a distinct liability. The diet should be full and nourishing; and massage is helpful, whilst drugs are frequently necessary for the lightning pains. Sometimes a line of treatment is undertaken, known as Fraenkel's, which consists of teaching the patient to regulate his movement by his eyes, so that he will know exactly where to place his feet when walking. When lying in bed, he can practise placing his feet in the notches of the wooden apparatus shown in the accompanying diagram (Fig. 59), and later he has to

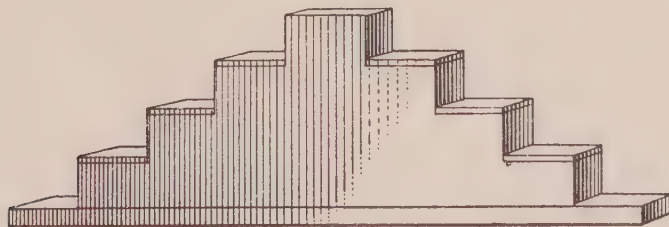


FIG. 59.

place his feet accurately on the footprints traced out at regular intervals on the floor. At first he has to be held

on either side by the nurse, but later manages with the assistance of sticks. All movements must be slowly performed, and over-fatigue must be avoided. The patient cannot walk properly because he cannot appreciate the position of his feet on the ground from the lack of sensation. It will be evident that Fraenkel's system is a process of re-education; the patient has, in fact, to learn how to walk again. More recently a method has been tried in which neosalvarsan is injected subcutaneously, and later the patient's serum is withdrawn from a vein and injected into the cord. When this has been done four or five times in an early case improvement may follow.

Spastic Paraplegia is a condition in which the legs are stiff, so that when the patient walks he does not bend them at the knee, but swings them round. In severe cases the legs may be swung round so far that the walk is known as *scissor leg progression*. The knee jerks are greatly increased, ankle clonus and Babinski's sign are present. Sensation is unaffected. Signs of the cause may be present, such as Pott's disease, gumma of the cord, &c.

NURSING.—The usual directions as to fresh air, tonics, and good food should be observed. Massage and electricity applied to the legs will help. Recently operative treatment has been undertaken with success.

Spastic Diplegia is a condition in children in which all four limbs are stiff and paralysed. It is caused by injury during birth to the brain or meninges. These children are generally mentally defective and liable to fits.

Hereditary Ataxia (Friedreich's Ataxia). — This

generally occurs in several members of one family. They may grow up to adult life, but do not usually survive after twenty-five to thirty. The head and arms may be constantly moved in a jerky manner, and the gait may gradually become ataxic, until it resembles the reeling of a drunken man. Mental impairment is present, and the patients are liable to laugh and cry on the slightest provocation. The speech is characteristically slow. Deformities, such as club-foot, scoliosis, &c., are often present. The reflexes are lost, but sensation is unimpaired, and the bladder and rectum are not affected.

NURSING is on general lines, and calls for no special mention.

Syringo-Myelia.—In this condition the patients are unable to feel heat, cold, or painful sensations, but preserve that of touch. The muscles may be wasted. Joint troubles are common, and there is a particular susceptibility to fractures. Painless whitlows frequently occur, because injuries are not felt. The disease is chronic, and death generally ensues from some intercurrent disease.

NURSING consists only in the avoidance of anything which is likely to burn or otherwise injure, and the treatment of any symptoms which may arise.

Neuritis means inflammation of a nerve. When more than one nerve is affected, the condition is known as **multiple or peripheral neuritis**. It may occur in the acute specific fevers such as diphtheria, influenza, &c., in alcoholics, after the ingestion of arsenic, lead, and mercury, in certain diseases such as diabetes, phthisis, &c., and after exposure to cold or from over-exertion.

SIGNS AND SYMPTOMS.—In addition to signs of the cause, there are generally pain, numbness, and tingling in the affected part. Deep pressure over the muscles of the arm or leg causes pain. Paralysis is always present to a certain extent. When the legs are affected, the patient walks in a very careful manner, lifting his legs high above the ground owing to the tenderness of the feet. In the neuritis due to lead poisoning, the wrists are most frequently affected, and the condition known as *drop wrist* develops.

NURSING.—The limb must be kept absolutely at rest, and if the legs are affected they are best placed on an air or water-bed. Passive movements should be employed, and, as soon as the pain will permit, electricity and massage should be instituted. To alleviate the pain, belladonna plasters or hot *Lotio plumbi* will prove of service. Internally such drugs as salicylates or iodides may be ordered, and opium may be needed for the pain, but the treatment of the cause is of paramount importance, such as the avoidance of alcohol, &c.

Sciatica.—It is unnecessary to discuss in detail neuritis of each nerve, as it may occur in any nerve in the body, but **Sciatica** (neuritis of the sciatic nerve) and **Bell's Palsy** (neuritis of the seventh cranial nerve) are so commonly met with that a few words about their nursing are essential.

SCIATICA NURSING.—The leg must be kept absolutely at rest, and for this purpose a splint is sometimes fixed on either side of the affected limb. Medicine for the cause, such as salicylates or potassium iodide, will be ordered. Blisters can be placed along the course of the nerve, that is to say, on the lower part of the back and along the posterior aspect of the thigh and calf. Various

liniments or electricity can be tried, and, finally, injection of drugs into the nerve may be a last resort. The diet should be carefully regulated, as for gout or rheumatism. Some cases do extremely well at such spas as Buxton or Bath. The nurse should remember that the complaint is sometimes very chronic, and may last for months.

Bell's Palsy (Facial Paralysis).—The cause of this may be cold or disease of the ear, or any of the causes given for neuritis above.

SIGNS AND SYMPTOMS.—One half of the face is paralysed, so that the patient is unable to close the eye, wrinkle the forehead, smile, whistle, or show his teeth. Tears may run from the affected eye, and there may be complete deafness on that side. Owing to over-action of the healthy side, the patient frequently thinks the latter to be the diseased side.

NURSING consists in treating the cause and the administration of nerve tonics, whilst locally fomentations are placed over the face and ear, or a blister may be applied behind the ear. Massage and electricity are often employed. In a few weeks improvement is noticed, but complete recovery takes a month or more.

Pseudo-Hypertrophic Muscular Paralysis.—The cause of this is unknown. It begins gradually in children (almost invariably males) between the ages of two and seven. Various muscles—for example, those of the calf or buttock—become enlarged, but the enlargement is not muscular tissue, and power is lost. They walk in a waddling manner, and if placed on their back find it extremely difficult to get into the standing position, and have to help themselves by placing their hands on

their knees. Sensation is unaffected. The muscles gradually become weaker and weaker, until the patient becomes bedridden. Death generally ensues before the age of twenty-five from some intercurrent affection.

NURSING consists in massage, liberal feeding, and the administration of tonics.

Paralysis Agitans.—This disease generally attacks old people. It is characterised by a curious pill-rolling movement of the hands, a blank expression on the face, and weakness generally of the whole body. The subjects walk in a curious manner, as though running on their toes. No special nursing is required, except for debility.

Epilepsy.—This is sometimes called the “Falling Sickness.” There are three varieties of epilepsy. **Jacksonian Epilepsy**, which is due to some pressure on the brain, is characterised by twitchings of a limb or of one side of the body without unconsciousness. **Petit Mal** (or Minor Epilepsy) is a condition of momentary loss of consciousness without twitching or fits; during the unconsciousness the patient may stop speaking, or any action upon which he is engaged, and then resume as though nothing had occurred. **Grand Mal** (or Major Epilepsy) is the variety usually meant when the term “Epilepsy” is employed. The cause is unknown, although some authorities believe that heredity and alcohol are factors. It is characterised by fits, which always have the following features. There is an *aura* or warning, *i.e.* the patient can tell that a fit is about to take place, because of some sensation which always precedes it—*e.g.* he may feel numb in a limb, may flush, may experience tingling or pain in a certain part of his body, or he may see, smell, or hear some

imaginary object. The aura lasts a few seconds only, and is followed immediately by the stage of *spasms*, in which the patient becomes perfectly rigid, with head drawn back and legs extended. Breathing ceases, and the patient gets blue in the face. After half a minute the stage of *convulsions* occurs, in which twitching takes place all over the body. During this stage froth oozes from the mouth, and the tongue may be bitten. The urine and fæces may be passed involuntarily. After about three minutes the fit ceases, and the patient falls asleep. Rarely, instead of recovering, the patient may pass into a succession of fits, and even die; such a condition is known as the *status epilepticus*. After a fit, the patient is occasionally not responsible for his actions, and may quite unconsciously commit acts of violence, indecency, or thieving.

NURSING.—If the fit is usually preceded by a feeling of numbness in the hand, it may be prevented by fastening a cord round the wrist for the patient to pull when the aura threatens to occur. During the fit, the clothing round the neck should be loosened and a cork or other object placed between the teeth to prevent injury to the tongue; after the fit has passed, the patient should be put to bed for several hours. Between the fits, the patient must be warned not to undertake any work which involves great mental or physical strain; and, since it is impossible to tell when a fit may occur, he should not place himself in any position in which he is liable to fall. Any excitement, such as games, theatres, &c., must be avoided. The diet should not contain highly seasoned foods, and meat in moderation only is permitted. Some doctors advise the exclusion of salt from the diet. Alcohol should, of course, be prohibited. The drug which is frequently used is one

of the bromide preparations, and the nurse should see that it is always taken with plenty of water (see p. 35). This treatment should be continued for at least two years after the last fit has taken place.

Hysteria is a peculiar condition which is responsible for all sorts of manifestations without there being any discoverable organic disease in the nervous system to account for them. It generally occurs in females, especially in those who are anæmic, run down, or of neurotic temperament. Although no nervous cause can be defined, it is essential that the nurse should not conclude that hysteria is the same as humbug.

SIGNS AND SYMPTOMS.—The signs and symptoms are so diverse and numerous that it is impossible to describe them all. The patients are generally emotional, apt to laugh or cry without any cause, and are exceedingly anxious to gain sympathy. They may complain of numbness or tenderness in various parts of the body. They frequently suffer from violent headache and a sensation of swelling in the throat, known as the *globus hystericus*. Weakness in any group of muscles may occur even to the extent of simulating paralysis. The knee jerks are exaggerated. Fever may occur, and so may constant cough or intractable indigestion, and severe wasting is a very frequent symptom. Hysterical fits usually follow excitement. During the fit the patient falls gently to the ground or on to some suitable piece of furniture without injuring herself. She then starts shrieking and groaning and flinging her arms and legs about in the most erratic manner. The face gets congested from the exertion, but although frothing of the mouth may be seen during the fit the tongue is not bitten, nor is there involuntary passage

of urine and fæces. When the fit has ceased an excited state of mind persists, with no desire to sleep (contrast with epilepsy).

NURSING.—In no case is there a greater call for the combination of gentleness with firmness, for whilst the nurse must not consider the patient a malingerer she must not be unduly sympathetic. In the same way the relations and friends must be educated as to their behaviour towards the patient. This last rule will be found particularly difficult of execution in a neurotic family. By far the most beneficial results are obtained by the **Weir Mitchell** treatment. This is essentially a rest-cure, and consists in putting the patient to bed in a quiet room and not allowing her to receive any visitors nor read any letters or papers. The diet is particularly liberal, and includes at least three to four pints of milk a day. During the later stages of the treatment massage and electrical treatment are instituted. After a few weeks the restrictions as to reading, &c., are gradually withdrawn, but at least six weeks are necessary for a cure, and in any case the patient must not return to an occupation which involves mental or physical strain. Subsequently she should be advised to take moderate exercise, being very careful to avoid fatigue, and encouraged to eat as much good food as possible. The doctor generally orders some nerve tonic or sedative, such as Valerian or Assafoetida. Should a fit occur, the patient can be brought to her senses in various ways. Douching with cold water, flicking the face with a wet towel, or putting strong ammonia under the nostrils, are some of the common means employed, but all this treatment must be done very carefully, so that no accusation of harshness can be brought against the nurse.

Neurasthenia.—This is a functional nervous disease belonging to the same class as hysteria, generally occurring in men as the result of mental strain, or overwork. A neurotic family history is also a great factor.

SIGNS AND SYMPTOMS.—These are extremely variable. Among the commonest complained of are sleeplessness and loss of appetite. Pains may occur anywhere in the body, and the typical neurasthenic is extremely anxious at all times to discuss his symptoms in detail. Fears or dislikes of certain conditions, such as being alone, being shut up, or being in an open space, of disease, &c. (so-called “phobias”), are familiar occurrences.

NURSING.—Consists in treating the patient as though all his complaints are reasonable, whilst gradually persuading him that they are non-existent. He should have rest, change of air and scenery, and liberal diet. In bad cases the Weir Mitchell treatment is tried (see previous page).

A Hypochondriac is a person who is so afraid of illness and disease that he magnifies the most trivial symptoms, until he is practically the victim of delusions.

Neuralgia is a condition in which pain occurs along the nerve, just as in neuritis, but without any inflammatory change being present. It is popularly restricted to pain in connection with the teeth.

Headache may be due to such a multitude of causes, either local or general, that it may possibly be a symptom of disease occurring in any of the systems, such as the alimentary, circulatory, or renal. Among the local causes one must never forget the eyes, teeth, ears, or

some disease of the bones or meninges. It occurs in anæmia, in heart and kidney disease, in fever, from certain drugs such as alcohol, tobacco, or quinine, and it is frequently present in such conditions as indigestion and constipation.

Migraine is a variety of headache in which the pain is restricted to only half the head, and accompanied by visual disturbances.

NURSING.—In view of the fact that headache may be only a symptom of any one of a very large number of widely divergent causes, it is clear that the same remedy will not suit each individual case. Popular and home remedies are sometimes depressants to the heart, and are, therefore, dangerous to administer. In cases of bad headache the patient should be put to bed in a quiet room with the blinds down, and a little eau-de-Cologne on a handkerchief, or ice may be placed over the head. Sometimes a drink of tea or coffee is useful. The doctor may order the following drugs, but they are only to be used with caution, and never given without his command: phenacetin, aspirin, bromides, antipyrine, and caffeine. The cause must be carefully investigated and treated; for example, indigestion and constipation must be remedied. Any local cause, such as defective eyesight, must be attended to.

Insomnia, or Sleeplessness, can occur in acute specific fevers, in heart or kidney disease, after taking too much tea or coffee, from flatulence, indigestion, and constipation. Severe pain or coughing will, of course, prevent sleep. Overwork, worry, or excitement are other causes of insomnia, which may also occur in hysteria, neurasthenia, cerebral tumour or insanity.

NURSING.—A careful regulation of the diet, and the

avoidance of late meals, should be insisted upon. The bedroom should be quiet, well ventilated, but not too cold. Cold feet will sometimes prevent sleep, and for this purpose bed socks or a hot-water bottle may be applied. With some people the drinking of milk proves sufficient to induce sleep, but in any case the treatment of the cause is the important consideration. Insomnia is a very prolific cause of drug habits. Amongst the drugs which may be administered for its relief, *but only with the doctor's orders*, are alcohol, bromides, chloral, sulphonal, veronal, trional, and many allied compounds. Opium and morphia are only permitted in extreme cases. Of all the drugs used paraldehyde is perhaps the most suitable. It has a most disagreeable taste, sufficient to prevent the drug habit being acquired. Further, there is little prospect of this drug being taken surreptitiously, since it imparts an offensive characteristic odour to the breath which is easily detected.

CHAPTER XII

NURSING OF THE INSANE

It is exceedingly difficult to define exactly what is meant by the word insanity, since there are so many borderland cases, and so much depends upon the alterations in the manners and characteristics of the sufferer, so that that which would be considered insanity in one man would pass as normal in another. For working purposes, some such definition as the following will serve: When a person is unable to do his work, manage his own affairs, mingle in the society of fellow-men, or is unsafe to himself or others, or to society, because of some disease or disorder in the working of, or imperfection of development of the brain, he is said to be insane.

The actual cause of insanity is not known. Heredity certainly plays a large part, especially where there is a history of alcoholism, epilepsy, or crime in the family. Overwork or great trouble may also act as factors. It may follow such varied diseases as fevers, syphilis, epilepsy, alcoholism, sunstroke, drug-taking, uterine or thyroid troubles. It occurs more frequently at certain ages—such as puberty and adolescence, especially where love affairs and pregnancies occur, or at the climacteric. Finally, when there are gross lesions of the brain, such as injury or tumour, there is no doubt as to the cause.

As already stated, there are no definite signs and symptoms indicative of insanity, but it is highly suggestive of mental disturbance if the character of a patient entirely changes. Should he become irritable, unduly melancholy or excited, change his mode of living, and either lose interest in or refuse to follow his occupation, and be troubled by sleeplessness, the nurse may consider these as possible warning signs.

There is no characteristic appearance of a lunatic, so that he could be recognised by a description. He may vary between the two extremes of dressing naturally and looking normal, and being most fantastically garbed, with a wild and unnatural look. The most important signs of lunacy are, of course, hallucinations, illusions, or delusions. When a patient hears, smells, or sees something which does not exist, he is the victim of **hallucinations**. Should he mistake something which he sees or hears for something entirely different, this is called an **illusion**. **Delusions** exist when the sufferer imagines he is someone else, such as the King of England, Satan, &c. Patients will often attempt to keep these false impressions to themselves, but by careful observation the nurse may perceive from their attitude of listening, looking, and speaking, that such imaginary ideas are present. In advanced cases patients are frequently dirty in their habits, and this failing may be either due to wilfulness, or because they are too stupid to act normally. As the result of delusions, viciousness, or excitement, they may be very destructive, and so tear their clothes, or set fire to places. Thieving is also a common symptom, despite the fact that the plea of kleptomania has been so frequently made use of to guard the upper classes in police-court cases as to bring it into disrepute. Sexual malpractices

or indecent exposure of the person are also characteristic of insanity. Lunatics will sometimes eat in a gross manner all sorts of articles, and bolt their food like an animal.

There are two dangerous tendencies in lunacy—suicidal and homicidal—which need a little more detail.

Suicide.—The reasons for a patient committing suicide are either because he is tired of life, or suffers from some delusion; *e.g.* he may hear a voice telling him to kill himself. It may occur from a sudden impulse, or accidentally—*e.g.* if he attempts to escape by jumping out of a window. These patients may openly confess to their intention to commit suicide, or may conceal their object, and even go so far as to pretend that nothing is further from their thoughts. In any case, they require the keenest observation and vigilance, and the nurse, having been warned of this possibility, must never be lulled into a sense of security by their behaviour. The same advice to the nurse holds good in those cases where the patients exhibit some desire to mutilate themselves because of a delusion.

Homicide.—This may result from hallucinations, delusions, a sudden paroxysm of mania, an ungovernable impulse, or from an attempt to escape.

Generally speaking, the skins of lunatics do not act well, and have a sallow, unhealthy look, with frequent occurrences of acne, spots, or boils. The lack of attention to cleanliness frequently leads to skin diseases, such as eczema, itch, &c. The small vessels in their ears are exceedingly delicate, so that the slightest injury may cause bleeding under the skin. The blood

collects, and creates a swelling as big as a hen's egg, which, although red at first, soon becomes a hard, white, irregular swelling, which persists always.

The bones are, in certain forms of lunacy (G.P.I., old people and epileptics), exceedingly fragile, and this fact must be well borne in mind, for the slightest roughness will break a bone, a contingency which would never occur in a healthy person, and the nurse may be accused of undue violence. Should a fracture occur, the nurse should prepare plaster of Paris with which the doctor may put up the injured limb, and if a bandage is used, it should always be stitched on, so as to avoid the use of pins.

Asylum Dysentery, or ulcerative colitis, is characterised by violent diarrhœa, accompanied by straining and colic. As many as fifty foul-smelling stools containing blood and mucus may occur in a day. It is said by some authorities to be infectious. The temperature rises to 100° or even 104°, and falls suddenly on the third or fourth day. It may for the succeeding day or two be below normal. Recovery is always slow, and sometimes the diarrhœa persists as a chronic condition. For the nursing the nurse is referred to Colitis, p. 129.

All the other ills which the human flesh is heir to may occur, but since lunatics do not complain of feeling indisposed or experiencing pain, serious lung troubles, new growths, and other diseases may easily be overlooked.

At the present time there is no classification of the various forms of insanity which is universally recognised, and, in any case, it would not be necessary for a nurse to learn such a list.

A brief description of the forms most commonly met with will be found under the headings below. So much of the nursing and management of these varieties is common to them all, that the treatment is discussed in one section, followed by a few paragraphs pointing out the importance of the various indications in certain forms.

Idiocy.—When a person is born with such a feeble intellect that he is unable to look after himself in any way whatever, he is known as an **idiot**.

An **Imbecile** is one who is born with a brain affected in a similar manner to an idiot, but not to such a serious extent, so that whilst he is able to look after himself, he is unable to earn a living. They are generally difficult to educate, although they will occasionally show great proficiency in some such subject as arithmetic. They may be quite affectionate and good, but owing to their lack of self-control, they are liable to outbursts of temper, incendiarism, or thieving. The danger of homicide or criminal assault is always present.

Mania.—The mind is unduly excited, so that the patient's conduct and speech may be most hilarious. He frequently uses foul language, and may be dirty or destructive in his habits. His powers of endurance without sleep are remarkable. Hallucinations, delusions, and, more rarely, suicidal or homicidal tendencies are present. It is impossible to fix his attention, and his restlessness and raving are so incessant as to preclude all chances of his eating or attending to the calls of nature. The temperature is sometimes raised, the tongue is furred, and the bowels are constipated. Occasionally this form persists as **Chronic Mania**, in which outbreaks of violence are frequent.

Stupor.—This is characterised by the total lack of voluntary movement on the part of the patient, so that he either takes no interest in his food, surroundings, &c., or may fix himself in a rigid attitude, and refuse to be moved.

Melancholia.—In this condition the patient is extremely miserable, unhappy, and depressed. He takes no interest in his surroundings, and may wish to commit suicide. The complexion and circulation are bad. The tongue is furred, and constipation is present. Occasionally delusions are observed.

Dementia.—This is a condition closely resembling that of imbecility, except that it occurs later in life in a person who has previously been normal. Several forms are described—(1) **Primary dementia**, or **Dementia precox**, which occurs in young neurotic people after overwork, rapid growth, or some such illness as influenza. (2) **Senile dementia**. This naturally occurs in old people, who become like an irritable, spoilt child, with a most defective memory for recent occurrences, but good for past events. (3) **Secondary dementia**, which may follow cerebral hæmorrhage, epilepsy, alcohol, fevers, or childbirth.

Any form of dementia may show great changes in character, fantastic modes of dressing, or outbursts either of hilarious excitement or depression.

Alternating insanity or Circular insanity is a condition in which the different forms of insanity follow one another in series.

Delusional insanity is, as its name implies, characterised by delusions which may be of a variable and changing character, or fixed and always the same.

This latter condition is sometimes called **Paranoia** or **Monomania**. The delusion which occurs in monomania is generally one of persecution, and affects every detail of the patient's life, so that he may leave his home, and employment, and either commit homicidal or suicidal acts in obedience to it. Except for the delusion, he may be perfectly reasonable in all other respects.

There are four forms of insanity which do not come under any of the above headings. The first of these is **Insanity occurring with tumours or injury of the brain**. This is so inseparably associated with the cause that it requires no further description, and the nurse is referred to a surgical text-book.

Insanity in Alcoholism may take many forms—a **dipsomaniac** is a person who, in response to an irresistible desire, takes too much alcohol periodically.

Acute alcoholic delirium occurs after a drinking bout, and is characterised by a furred tongue, high temperature, and the signs and symptoms already mentioned under **Acute Mania**.

Delirium Tremens.—This follows a bout of drinking, or an accident occurring in people who habitually take too much alcohol. The patient is either unable to sleep, or the victim of bad dreams. He mutters incessantly, and sees such imaginary objects as rats or snakes. He is exceedingly tremulous, and though he may talk boastfully, he is usually very frightened and suspicious. Rarely he may commit suicide, or even murder. Recovery generally occurs after a few days or weeks.

Alcoholic Insanity.—This occurs in chronic drunkards, and is characterised by the patient becoming extremely

dirty, losing all self-respect, and developing the art of lying to its fullest extent. In addition to being suspicious and distrustful, he may be the victim of hallucinations. The other signs of alcoholism, such as cirrhosis of the liver, or alcoholic neuritis, may be present.

Insanity associated with Pregnancy.—This may occur after the third month in pregnancy, generally in an unmarried primipara. Insomnia and depression, accompanied by delusions and hallucinations, are the main features. During the first fortnight after delivery the mother may become very restless, suspicious, excited, or depressed. Sleeplessness, fever, and suppression of milk and lochia are also observed. There is great danger of the mother injuring or murdering her child. The prognosis in both these conditions is favourable. During lactation the mother may suffer from melancholia, or even mania.

Insanity in Epilepsy.—Should insanity occur in epilepsy, as it occasionally does, it may be either of a temporary or permanent character. Just before a fit, the patient may be sullen, morose, and dangerously violent. Occasionally the fit is replaced by a maniacal outburst, but the most common form of madness is what is known as **Post-Epileptic Insanity**, which occurs after an attack in Grand Mal, or even Petit Mal (see p. 208). The patient does not regain his normal senses, but may wander aimlessly about, or perform automatic actions, which may lead him to thieve, indecent exposure, or even to such crimes as homicide. Later on in the disease, the epileptic becomes the victim of dementia as described above.

General Paralysis of the Insane.—This is sometimes, for the sake of brevity, referred to as “G. P. I.”

There is nearly always a history of syphilis having occurred many years previously. The modes of onset of this trouble are very varied. He may indulge in excesses, or may be the victim of grandiose ideas. For example, he may speculate or spend his money in the most lavish manner. He becomes careless in his dress and business methods. Occasionally he gets transient squint, blindness, deafness, headache, or paralysis of a limb. When the disease is developed he is a boastful, loud, incessant talker, full of schemes, and generally imagining that he is a very big personage. More rarely he is melancholic. He has Argyll Robertson pupils (see p. 203), speaks in a slurring manner, with tremulous lips and tongue, and writes badly, leaving out letters and words. The Wassermann reaction of his blood is positive (see p. 77). Fits always occur, and leave him in a much worse condition than he was beforehand. During the progress of the disease he may show marked improvement, so that a lucid interval may occur, but invariably after a fit he becomes worse than ever. They seldom live more than two to three years, and in the end become bedridden and demented, with no control over their sphincters. They eventually either die from wasting or exhaustion, or some such intercurrent trouble, as pneumonia or phthisis. Anti-syphilitic remedies are of no use in this condition.

NURSING OF THE INSANE

Whilst the points enumerated in Chapters I and II hold good for nurses who undertake the nursing of the

insane, there are certain points which require especial emphasis.

THE NURSE.—The responsibility undertaken by the nurse in these cases is certainly not exceeded by any other condition. While it is exceedingly important that she should be firm, sympathetic, tactful, and cheerful with her patients, she must be particularly careful to keep her feelings strictly under self-control, for it is of paramount importance that she should on no occasion show alarm or excitement. The craftiness and dangerous habits of lunatics are only to be discovered by the observant and vigilant nurse. She must be careful not to make favourites among the lunatics in an asylum, for that will only lead to discontent, jealousy, and even delusions. She must never tease a patient because of his delusion, nor must she yield to it, for example, by recognising his imaginary title. To a great extent the patient is like a child, and it is extremely important always to keep a promise when one is made. It is useless to lose the temper when dealing with a patient who is dirty in his habits, obscene in his language, or irritating and resisting in his behaviour.

Since nursing and attendance on the insane involves a tremendous mental strain to everybody concerned with them, no woman should undertake this arduous task unless she is blessed with unlimited patience and strength of will. On no account should a neurotic or nervous subject attempt this branch of nursing.

SICK ROOM.—The details as to the selection of a sick room, as given on p. 7, are of the same importance when the case is a mental one, except for the fact that in the case of ordinary sickness it is customary to choose a room in the upper part of the house, but in view of the danger of a maniac attempting to jump from

a window, it is usual in the latter case to select a room on the ground floor. It is very important to consider the following points in the furnishing of a room: (1) The bolts should be taken from the inside of the door, and all keys should be removed. (2) No fire-irons should be kept in the fireplace. (3) The windows should be screwed, and it may be necessary to have bars placed outside. (4) No matches or string should be left about the room, nor should nails, hat-pins, razors, or scissors be by any chance within the patient's reach. Picture-cords are also obviously a possible source of danger. (5) Table crockery and silver must always be carefully counted after a meal, and removed to another room. No knife should be allowed unless the doctor has specifically permitted it.

THE BED.—The ordinary bed and clothing is used, but the nurse should remember that this frequently forms a convenient hiding-place for some such dangerous articles as nails, broken glass, or crockery, and for this reason it is necessary to search the bed. The nurse should be careful never to allow the patient to sleep with the face covered by the bed-clothes—this is particularly important with patients who are the victims of epilepsy or those with suicidal tendencies. Sleep is most essential, and the restlessness of the patient during the day will disappear if sleep can be induced.

EXERCISE, AMUSEMENTS, &c.—When the doctor permits exercise there is no doubt that it acts in an extremely beneficial way. Restlessness, vicious habits, and destructive tendencies are greatly improved. Where his health and strength will permit of it, employment, such as gardening, is an excellent form of exercise. He will become so interested in the work that he will tend

to think less about his delusions. Games, such as draughts, cards, &c., will also help to occupy his mind. It is for this reason that concerts and entertainments are held in asylums. The nurse will find it necessary to keep a very careful eye upon the clothing and behaviour of the patient when out, so as to minimise the chance of his catching cold or suffering from heat stroke.

CLEANLINESS.—With regard to the personal cleanliness of lunatics, the nurse will require to exert the greatest care and supervision, for they are not only extremely dirty in their habits, but very careless. She should see that they clean their teeth properly. It frequently happens that the teeth of a lunatic become very much decayed, without apparently causing him the slightest inconvenience or pain; it is therefore obvious that, unless the nurse sees the teeth occasionally, such a condition may easily be overlooked. When patients are bedridden or paralysed, they are, owing to their dirty habits, extremely liable to develop bed-sores, and the nurse must be careful to wash their backs in the manner described on p. 16. The following rules for administering a bath, which are in force in every asylum, should be strictly adhered to:—

1. The thermometer should be placed in the bath, so that the nurse can be sure the water is at the temperature ordered by the doctor.
2. Cold water must be turned on first before the hot, and the mixture of hot and cold water must be constantly stirred, so that the temperature is uniform.
3. The amount of water should never be more than about six or seven inches deep.
4. The hot water must never be turned on while the patient is in the bath.

5. Never force the patient's head under water.
6. The water must be turned off, the bath emptied, and the waste valve open before the nurse leaves.
7. No cold or shower bath should be given without special instructions.
8. The taps of the bath should be made so that they will only work with a bath key, and this key should on no account be left within reach of the patient.

CLOTHING.—The nurse must directly supervise the dressing of a patient, or she will find, either through carelessness or wilfulness, that the patient will omit to put on certain articles of dress, such as a vest. Again, he may put on his clothes in the wrong order, or the wrong way round. Fantastic dressing, as has already been stated, should never on any account be sanctioned. In the case of patients who tear their clothes, it is sometimes necessary to make a suit of canvas or ticking, and this is made so as to fit closely to the skin, with the opening at the back. Small holes are pierced on either side of the opening, and through these short pieces of string are tied to hold it together.

FEEDING THE PATIENT.—Only one or two points need mentioning in addition to those given in Chapter II. No knives should ever be allowed without the direct permission of the doctor, and it is as well to chop or mince the food if it is observed either that the patient has bad teeth or has a tendency to bolt his meals. In addition to sop foods, liquid or peptonised food may be ordered. In an asylum, lunatics will occasionally try to steal their neighbours' food, and if such a thief is discovered, it will be necessary to separate him from the others.

Paralysed or epileptic patients should never be per-

mitted to take their meals alone. When feeding unconscious, paralysed, or delirious patients, only a teaspoonful of food should be given at a time, and the nurse must be sure that this has been swallowed before another is administered.

It is most important for the nurse to put upon her report the amount of food taken. If he refuses to take it, force should never be used. Persuasion will sometimes succeed, and rather than resort to compulsion it is better in certain cases to make use of some such device as hiding the food so that the patient can find it himself. In bad cases the doctor may order nasal feeding, and whilst the details for this proceeding are carried out as for an ordinary patient (see p. 241), the lunatic will require some special preparation so as to prevent struggling. To achieve this, it is essential that several people should be present. The head is either held by the hands or by means of a folded towel placed round the forehead. Another towel is arranged round the chest and arms, and held behind, whilst the legs and thighs are fastened to the chair.

Rectal feeding should on no account ever be attempted.

BLADDER AND BOWELS.—Even in patients whose bladder and bowels are working normally, it is necessary for the nurse to keep a daily observation of the habits of the patients, and to remind those who forget. Constipation is a common symptom of the insane, whilst retention or incontinence of urine are extremely likely to occur, and will require appropriate treatment.

The bolt should be removed from the door of the water-closet.

TEMPERATURE OF THE PATIENT.—The most important point for the nurse to remember in this connection is

not to take the temperature by the mouth. Many patients are extremely likely to bite upon and smash the glass. It is always taken by placing the instrument in the axilla or the groin, being held there the requisite time by the nurse. In some cases the only position in which the temperature of the patient can be taken is by placing the thermometer in the rectum. Rarely, it is necessary to take the temperature on both sides of the body. The pulse rate and respiration are taken at the same time as the temperature. If any difficulty or stertor be present with the breathing, it should be carefully noticed and a report made.

SLEEP is one of the most beneficial and essential elements in the treatment of lunacy. The exact hours during which the patient has slept must be recorded. Sleep removes to a large extent the restlessness from which lunatics suffer. It has already been mentioned that patients should on no account be allowed to sleep with the face covered by bed-clothes, particularly where fits occur or a tendency to suicide is present. Rest in bed in the open air often decreases the agitation of melancholia or mania, and sometimes succeeds in producing natural sleep.

THE ADMINISTRATION OF MEDICINE.—This is usually a very difficult task. It is impossible to reason with the patient or explain why he should take something which is very disagreeable, but, just as in the case of food, force should never be used, and persuasion will sometimes succeed. A nurse should on no account resort to such tricks as concealing the medicine in the food, jam, &c. The discovery of such a ruse is bound to make the lunatic suspicious, and may lead to his refusing food altogether. Delusions as to his food being poisoned can easily be started in this way.

Medicine should always be locked up in a cupboard outside the room in which the patient is confined.

VIOLENCE.—Outbursts of violence are by no means infrequent, and a nurse should never attempt, except in an emergency, to employ force single-handed. If possible, she should summon assistance, and then, realising that resistance against such numbers is useless, the lunatic may quieten; but should he continue, it is obvious that many people can better restrain him without the risk of injuring him. As soon as possible, his boots should be removed.

The nurse must realise that mechanical restraints, such as strait-jackets, &c., are very seldom used, and that the law makes stringent regulations concerning them. They are principally only needed nowadays for surgical purposes, and must never be used without the doctor's orders. Even then, a careful record as to the means employed should be kept. Emergencies, of course, do occur when, for safety, and while awaiting the arrival of the doctor, the nurse will on her own responsibility resort to some such measures as the following:—A towel may be fastened round the arms and chest, and the legs may be encased in a similar way. Sometimes a clove-hitch round each ankle is fastened to the foot of the bed, or a sheet may be placed over the whole body, and fastened so securely that he cannot move.

On no account should a nurse kneel upon or twist the wrists of a patient, and the occurrence of a struggle should always be carefully reported.

Neither restraint, privations of food, tobacco, nor seclusion should be carried out without direct orders from the doctor; even then, careful notes as to the exact reason and length of time should be recorded.

By *seclusion* is meant the locking of a patient in a room.

Should any of the following conditions be observed, they should be noted and reported at once:—

Bruises.	Dragging one foot.
Swellings.	Giddiness.
Rashes.	Twitchings of the
Sore places.	muscles.
Distortion of the limbs.	Squinting.
Hæmorrhage from the	Drawing of the face to
eyes, ears, nose, or	one side.
mouth.	Fits.

EMERGENCIES.—The treatment of a great number of the emergencies which occur has been described in the previous chapters. There is always one golden rule to obey in the case of an emergency, and that is, to send for the doctor as soon as possible.

Loss of Consciousness may be due to apoplexy, epilepsy, or fainting. In the case of fainting, there is no special point to be noticed, but in the case of an epileptic fit the nurse should carefully note where the twitching begins, and how it proceeds. If the fit takes place during a meal, all the food must be removed from the mouth, for fear of it being inhaled into the lungs. For the treatment of apoplexy, see p. 200.

Bleeding.—The medical officer should always be summoned in the case of hæmorrhage. Bleeding from wounds and cuts may be controlled by pressure with a pad of wool. In bad cases of bleeding from a limb, a tourniquet may be applied, for details of which the nurse is referred to a surgical book. If a varicose ulcer is bleeding, all that is necessary is to lay the

patient flat and elevate the limb, when the bleeding will cease immediately.

Epistaxis, or nose-bleeding, is considered on p. 145.

For the treatment of choking, hanging, drowning, or burns, the reader is referred to pp. 277, 312, 313.

The above general statements have conveyed the main principles of nursing the insane, and, having read the symptoms of the varieties of insanity at the beginning of the chapter, the nurse will be able to pick out the points which are pertinent. A few of the main features of the nursing of the various conditions are enumerated below, but the details for each item have already been considered.

Idiots and Imbeciles.—They can often be managed at home until they reach the age of puberty, care being taken to separate them from the other children. After this age, or preferably before, they should be removed to an institution.

Mania.—The nurse must carefully watch the mouth, bladder, and bowels. They are apt to destroy their clothes, and so canvas clothing may have to be used. Sleep is an important adjunct. They are extremely liable to bolt or secrete their food, or they may refuse to take it. In the first case liquid, peptonised, or minced food will be necessary, and in the second nasal feeding must be resorted to. Owing to their violent efforts, they will require water for their thirst between the meals, and the moisture and perspiration which may accompany their straining may lead to bed-sores. Isolation and seclusion are sometimes ordered. Since padded rooms, forcible feeding, and frequent baths are necessary, they are best treated in an asylum. Should hot baths or the wet pack be

necessary, the nurse must carefully watch the pulse for any signs of collapse which may occur. In giving a wet pack, each limb and the trunk is usually swathed separately, so as to avoid any suggestion of restraint. Sedatives are usually contraindicated.

Stupor.—The patients are liable to bed-sores and lung complications. Pads of cotton-wool should be placed in their hands to avoid pressure sores. Warmth is essential. The constipation must be treated. Forcible feeding may be necessary. Hypnotics and electricity are sometimes tried, and tonics must be administered during recovery.

Melancholia.—Treatment is best carried out under asylum supervision. Rest, careful feeding, and the administration of tonics are the guiding features in the treatment. The nurse must be very watchful, since efforts at suicide or self-mutilation are not infrequently made. With great cunning, they may assume a happy air, and so deceive the nurse, or again, sudden impulses may occur. The patient should never be left alone. Hypnotics, hot baths, wet packs, high-frequency currents, or massage may be tried for the insomnia. Electrical treatment is, of course, contraindicated where delusions associated with electricity are present. Constipation is frequently present, and difficult to overcome.

Dementia.—It must be remembered that in the case of the aged they easily take cold or contract bed-sores. They cannot masticate their food properly, and are very liable to bruise or break their bones. Constipation is frequently present. Every effort should be made to rouse them out of themselves by making them play

games or giving them light employment. Hot milk or whisky and water before going to bed will often induce sleep.

Delusional Insanity.—Fantastic dressing must never be allowed, and the nurse must be on her guard against homicidal attacks. Confinement in an asylum is the best for the protection of the patient or his friends, and improvement is more likely to follow such a procedure.

Alcoholic Insanity.—The treatment of acute alcoholic delirium is the same as for mania, whilst alcoholic insanity is practically dementia, and should be treated in a similar way.

In Delirium Tremens the diet should consist of milk and concentrated broths at regular intervals. Alcohol should be withheld. The drugs most frequently employed are potassium, bromide, and chloral, or hypodermic injections of hyoscine. The nurse should watch the pulse carefully.

G. P. I.—Should a lucid interval occur, the relatives should be warned of its transient nature. Even in the early stages they are best removed to an institution, in view of the possibility of their behaviour resulting in trouble. These patients are very gross feeders, and so are liable to choke. Aspiration or broncho-pneumonia is likely to occur. Their bones easily fracture. The nurse must see that the bladder is emptied regularly. Occasionally they are dangerous. In the later stages of the disease, when they are completely paralysed, bed-sores must be guarded against, and contractures of the limbs avoided by movements.

Drug Maniacs.—Victims of the drug habit are re-

ferred to as morphia maniacs, cocaine maniacs, &c., according to the particular drug which they favour. To a large extent the description given under Chronic Alcoholism holds good for all these patients, with special points mentioned in Chapter III. The treatment for these patients is similar to that of chronic alcoholism.

CHAPTER XIII

THE NURSING OF SICK CHILDREN

Introduction.—Although the nursing of children is on the whole similar to the nursing of adults, special considerations are necessitated by a child's incapability to make its complaints known. Inasmuch as a satisfactory description of symptoms can only in rare instances be expected, the nurse must pay particular attention to signs. Briefly to enumerate, she must especially watch in any child the general appearance, the attitude in bed, the face, cry, eyes, lips, ears, nose, and skin, the breathing and movements of the chest, any cough, the throat, tongue, hands and feet; any weakness, limpness, or stiffness of any part, twitchings, convulsions, insensibility, or abnormal movements; the amount of urine passed, the frequency and condition of the stools; any swelling or redness of the joints. It is of very great importance to localise, as far as possible, the exact position of the pain. Many physicians accept only the rectal temperature of children. Special stress must be laid on the observation of scrupulous cleanliness in the nursing of children; their daily bath must be conscientiously carried out (unless disallowed by the physician). The buttocks must be kept perfectly clean; the food must be given precisely at the intervals ordered, at the correct temperature, and, in the case of older children at any rate, served up in an appetising

manner. Finally, let the nurse be cheerful, kind, firm, and watchful, and never forget to obtain and maintain the confidence of the little patient. Children characteristically manifest sudden changes of symptoms, the occurrence of which should be communicated to the doctor immediately.

Bathing.—General principles are of course observed, to prevent undue exposure, and to insure that the water is at the correct temperature. In addition, it must be remembered that a child's skin is more delicate and sensitive than that of an adult. A child should be washed all over with soap and warm water daily in a bath, at a temperature of not more than 100° F.

Sleep.—This is of even greater importance to children than to adults. Every endeavour must therefore be made to induce a refractory child to sleep. Absolute quiet and darkness are generally sufficient. Some children grow accustomed to special associations with sleep, such as holding or stroking the hand, or being sung to, and it is inadvisable to attempt to change suddenly such habits in a sick child.

Cries.—Observation of the cry in a child is of great importance; the variation depends upon conditions which an experienced nurse can readily diagnose.

A hungry baby cries vigorously, clenches his fists, which he attempts to put into his mouth, and will not be pacified until fed. The cry of temper is vigorous, the arms and legs are moved wildly, and the breath is often held for a moment before the cry occurs. Colic causes a very strenuous cry; at the same time the legs are drawn up to the abdomen, and flatus is usually

passed ; the pain comes on in paroxysms. In the cry of fright there is a scared expression on the face, and the child clutches wildly at the nurse. If teething be the cause, a sharp cry is suddenly uttered, and the fingers are thrust on the offending gums or tooth. With ear-ache the child will usually give vent to scream after scream, and the hand will in all probability be placed against the painful ear. A peculiarly shrill shriek, screamed out at intervals by a drowsy child lying with closed eyes, is generally indicative of meningitis. Other reasons for crying may be an over-loaded stomach, sleepiness, nightmare, coldness, lying in a cramped position, too tight clothing, damp napkins, skin rashes, and lastly, but always to be borne in mind, the onset of an illness.

The Feeding of Children.—The best food for infants, up to the age of nine months, is the mother's milk ; but when this source fails, the child can be either fed by a wet nurse, or weaned on a milk and water mixture. If the mother has not sufficient milk, she should take a cup of milk, milk gruel (see p. 303), or milk and water half an hour before nursing ; stout is not necessary. Even if the mother is unable to nurse the child entirely, she should not wean it, but give cow's milk in addition. In some instances the doctor may order dried milk, humanised milk, peptonised milk, citrated milk, or again, a modified milk, &c. In artificial feeding the greatest cleanliness must be insured in dealing with all of the utensils which come into contact with the milk ; failure of this precaution may lead to the most severe gastro-intestinal disturbance, or even serious general disturbance. The child should be fed at regular intervals, and not every time it cries. Condensed milk

is useless as food, but it may be useful if given for a short period during the summer, but it should not be used alone.

For the nurse's guidance a table is here inserted of the average milk mixtures given to babies of various ages:—

Age.	Meals in 24 hours.	Each Meal.	Total in 24 hours.	Cow's milk.	Water.	Sugar of milk.	Thick cream.
		<i>oz.</i>	<i>oz.</i>	<i>oz.</i>	<i>oz.</i>	<i>teaspoons.</i>	<i>teaspoons.</i>
1 week . .	10	1	10	3	7	2	2½
1 month . .	10	2½	25	10	15	6	6
2 months . .	9	3½	31½	13½	18	8	8
3 „ . .	8	4½	36	18	18	9	8
4 „ . .	7	5¼	37	20	17	9	8
6 „ . .	6	7	42	32	10	8	6

The Soxhlet apparatus is most useful for mixing, measuring, sterilising, and preserving the milk mixture. After the exact amount of milk, water, sugar of milk, and cream are mixed together in a clean jug, the correct quantity for each feed is placed in the appropriate number of bottles for the twenty-four hours; the cap is placed in position, and then all the bottles are sterilised by bringing the water in the saucepan, containing the bottle tray, to boiling point. Five minutes' boiling in this way is sufficient. When the tray is removed, it must be seen that all the bottles are effectively sealed. The rubber discs are not removed until a feed is due, the teat is put on the bottle, the milk mixture heated to blood heat and given to the baby. The average time occupied in taking the food is about ten minutes, which includes occasional rests of a few seconds each. At the ter-

mination of the feed the bottle must be cleaned at once, and placed mouth downwards in the rack.

Where no Soxhlet apparatus is available, the food can be brought to the boil in a clean saucepan, poured into a jug, covered with a double layer of muslin, and placed in a clean, cool situation away from all smells or drains. The food prepared in this manner should be freshly made twice in the twenty-four hours. The water used to dilute the milk must be boiled.

The nurse must bear in mind that where citrate of soda or lime-water is ordered, it should be added to the bottle, and well shaken immediately before the mixture is given.

It is an advantage to use the mixed milk of several healthy cows in preference to that from one cow.

At the sixth month, two teaspoonfuls of orange or grape juice should be given to the baby daily.

At nine months, the child can take a teaspoonful of red gravy, with an equal amount of mashed potato, on alternative days with the grape juice. At the tenth month, a teaspoonful to a dessert spoonful of a soft boiled egg may be given every other day. In addition, tiny fingers of bread and butter, and bread and milk, can form part of the daily diet. A crust of bread to bite on may be given as soon as there are a couple of upper and lower teeth. It is better to defer milk puddings until the child is twelve months old. Boiled sole may be given at eighteen months, and chicken at the age of two years. Red meat can be commenced at the age of two and a half years. Baked apples, green vegetables, &c., agree with some children earlier than with others. Finally, it must be remembered by the nurse that the main article of diet up to the age of two years is milk.

Children may be fed with a spoon or from a bottle; the latter must be made without tubes, and the teat should be fitted directly upon it. The "Boat bottle," with the marks of tablespoonfuls upon it, is the best. Bottles and teats should be washed, at least once a day, with boiling water, to which a pinch of soda has been added, and afterwards rinsed in cold water. They should be rinsed after each feed, and kept in cold water.

Nasal Feeding.—The description of Nasal Feeding is included in this chapter because the need for it occurs more frequently in children than in adults. In certain conditions, such as meningitis, diphtheria, and paralysis,

when the power of swallowing is absent or imperfect, it is necessary to introduce the food directly into the stomach by means of a tube. For this purpose a long soft rubber tube is fixed on to a funnel or barrel of a glass syringe. The other end of a tube, which is shaped like a

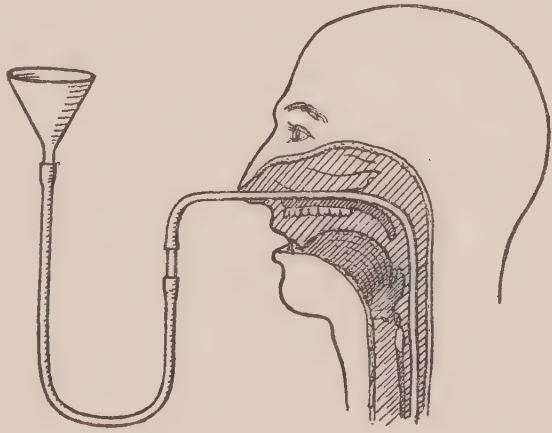


FIG. 60.

catheter, is greased and passed gently along the floor of the nose, care being taken not to let the tube point upwards. Another precaution to adopt is to prevent the tube coiling up at the back of the mouth. There is a third danger, namely, that the tube may pass into the trachea, but the nurse will recognise this occurrence immediately by the child's breathing becoming

difficult, and from the escape of air through the end of the tube with each expiration. It must be remembered, however, that even if the tube has gone into the stomach, a little air may escape from that organ, and can be expelled if the hand is pressed over the epigastrium. After a few moments, having allowed the child to get accustomed to the tube, and for normal regular breathing to be resumed, the food is slowly introduced. The milk must be kept running in a continuous stream, otherwise air will be introduced, and cause vomiting and painful distension. When sufficient food has been introduced, the tube is firmly grasped between the thumb and finger and slowly withdrawn. It is then washed carefully, and placed in boracic solution until it is again required.

Feeding with Stomach Tube.—This is not so often used as the foregoing, and is generally performed by the doctor. This method is more commonly employed with adults than children, but the procedure is the same in both cases. The child has its arms held, or, better still, is wrapped in a sheet, and a cork or gag is placed between the teeth. There is a special gag made



FIG. 61.

for this purpose, which consists of a plain piece of wood, which is placed in the mouth like a horse's bit. There is a hole in the centre of the wood for the passage of the tube (Fig. 61). The end of the œsophageal tube, having previously been dipped in oil, is held in the right hand and rapidly pushed towards the back of the throat, between the two forefingers of the left hand, which are placed upon the tongue if no special gag is available. This must, in all cases, be done rapidly for fear of

exciting vomiting. There is a special mark on the tube to which it must be passed, and the food is then administered as in Nasal Feeding.

Diarrhœa.—This is very frequent in children, especially in those under the age of two years, and it may be so serious as to prove quickly fatal if neglected. Careful nursing and correct feeding are essential.

SIGNS AND SYMPTOMS.—Speaking generally, the passage of five or more loose motions in the twenty-four hours constitutes diarrhœa. The motions may be of normal colour, or yellow, green, or almost grey. They may or may not contain undigested curds. A search for mucus and blood should always be made. The smell is occasionally most offensive. The condition of the child will vary according to the cause, the severity of the diarrhœa, and the child's constitution. In twelve hours a previously plump baby may develop a miserable and seriously ill appearance.

The cause may be an error of diet, teething, worms, an early manifestation of an oncoming illness, or a morbid condition of the bowel itself.

NURSING.—The first indication is removal of the cause whenever possible. Improper feeding should be suspected. Milk will probably need dilution with lime-water, and it may be necessary to give very small feeds, and consequently frequently. Broth, whey, or albumen water may be ordered. All the food must be given cold, or at least not too warm, otherwise it will excite an action of the bowels. If the child's condition is serious four to six drops of brandy in a teaspoonful of warm water may be given four-hourly for a short time, under the doctor's directions. The child must be kept warm in bed. A castor-oil or bismuth mixture will

probably be ordered by the doctor. After an attack of diarrhoea the child is extremely likely to take cold, and precautions must be taken.

Summer Diarrhoea.—This is a serious complaint, which occurs in summer and autumn. In a hot, dry summer it is one of the greatest causes of infantile mortality.

SIGNS AND SYMPTOMS.—Very severe vomiting and diarrhoea occur. The stools may be green, frothy, very offensive, slimy, and even tinged with blood. Rapid body-wasting, with weakness, is present; the pale skin wrinkles, and the eyes become hollow. A temperature of 102° F., or thereabouts, is frequent. In severe cases the fontanelle becomes depressed, the pallor of the face increases, the tongue looks brown and dry, the eyes remain partially open during sleep, and look glazed, while the hands and feet become cold. The child may die suddenly, or linger and eventually die from exhaustion.

NURSING.—Cleanliness is of extreme urgency. The milk must be boiled and covered with several layers of muslin. The child should be kept warm in bed, and is sometimes wrapped in hot packs. The air of the room should be pure and warm, but draughts should be avoided. Veal or mutton broth, rennet or white wine whey, or albumen water will probably be ordered; barley water should never be given. Lime-water may be useful. In a particularly severe case plain water alone forms the dietary for a few hours. Brandy is generally administered after the manner described above. Bismuth in some form is the drug usually administered, but in severe cases opium may be ordered. In severe cases saline infusions may be

injected by the doctor into the veins or through the abdominal wall into the peritoneum.

Constipation.—Although the majority of small children have one or two motions in the twenty-four hours, some have four or five small motions daily, whilst others have a tendency for the bowels to act only every other day; and yet all these children may thrive and enjoy good health. Nevertheless the nurse will be wise to act on the principle that one to two actions are necessary daily, and to endeavour to establish this habit in her patients.

Constipation may be due to faulty diet, insufficient exercise, neglect of regularity in going to stool, to various abnormalities of the bowel or of the digestive secretions, to intestinal bands or other causes of obstruction, and, lastly, it may be a symptom of a general disease.

NURSING.—Whenever possible the cause must be removed. For simple cases regular habits, the inclusion in the diet of sufficient green vegetables (where the child is old enough), and drinking enough liquid will usually cure, but some children require medicine such as liquid paraffin, syrup of figs, purgen, infusion of senna pods, regulin, or milk of magnesia to keep their bowels regularly acting, or at any rate to give them a fair start. Gentle massage of the abdomen night and morning is beneficial in some cases, but suppositories, pieces of soap, or enemata should never be used regularly for any length of time.

Vomiting.—The cause of vomiting may be an error of diet, too large a meal, too frequent meals, or a meal too hurriedly taken, badly cooked food, stomach or

bowel trouble, whooping-cough, brain disease, or marking the onset of impending illness.

NURSING.—The child is occasionally frightened, and requires reassurance. The cause must be removed if possible or treated. Where the stomach is overloaded a teaspoonful of ipecacuanha wine, followed by sips of warm water at intervals, may be given to empty its contents; small meals should afterwards be given for a day or two. Fluid magnesia or bicarbonate of soda with a bismuth salt are often useful remedies.

Hiccough.—This condition is so frequent, both in breast and bottle-fed infants, that it can be looked upon as almost normal. It occurs at the termination of the meal.

NURSING.—In many instances no treatment is necessary for this condition, which seems to right itself. Should something be needed, either a teaspoonful of dill-water or fluid magnesia will generally prove efficacious. In older children it is not infrequently due to bolting the food. In these cases, five drops of sal volatile in a teaspoonful of fluid magnesia will usually cure the condition. A very simple remedy is to take a deep breath, and, whilst holding it, to drink some water. It must be added that the occurrence of hiccough during a severe illness is a grave sign.

Flatulence and Colic.—These are very frequent in children. They may be due to faulty digestion, improper diet, gastro-intestinal disease, or obstruction. It is well to remember that colic occurs in paroxysms, and is relieved by pressure.

NURSING.—The cause must, of course, be removed. A purgative is indicated in ordinary cases. Hot fomentations applied to the abdomen will relieve the pain;

warm liquids are given. In some severe cases a few ounces of warm water gently injected into the bowel relieve the symptoms promptly and completely.

Wasting and Debility.—These are terms which are in frequent use by parents who wish to describe that the child has lost weight, and that weakness, pallor, inability to take food properly, lassitude, and peevishness are present. In bad cases the child may present a wrinkled, curious old-manlike appearance. The common causes in hospital patients are maternal neglect; bad feeding; insufficient clothing, fresh air, and exercise; and general personal and domestic uncleanness. In certain cases an underlying condition, such as tubercle, syphilis, or gastro-intestinal disease, may play a prominent part.

NURSING.—The treatment is obvious, and, in the absence of some serious constitutional disease, leads to excellent results.

Aphthous Stomatitis.—This is seen most often in children between one and three years of age. Aphthæ are small, round, greyish patches surrounded by narrow red areas, which are found on the tongue and inside of the lower lip. They may also be seen on the roof of the mouth and the inside of the cheeks. The temperature is raised, and general malaise with vomiting and headache is present. The saliva dribbles from the mouth, and there may be difficulty in getting the child to take its food.

NURSING.—The nurse must coax the patient to take its food, and, above all, keep the mouth scrupulously clean. It should be washed out gently with a damp piece of clean rag wound round a finger, using a fresh piece of rag every time. Borax and honey, borax and

glycerine, or a chlorate of potash lotion may afterwards be applied.

Thrush.—This appears as a thin white membrane covering the roof of the mouth, with often an appearance of milky white spots on the sides and tip of the tongue. As a rule, the surrounding parts are not red, but in severe cases they may be. The mouth is dry. In some cases a red rash is seen about the buttocks, which is due to the accompanying diarrhœa and not, as is erroneously supposed, to the thrush passing through the child. The milder form is apt to attack weakly infants who are not thriving well, or who are bottle-fed; the severer not infrequently follows starvation, chronic diarrhœa and vomiting, stomach trouble, fevers, or any serious illness. Thrush may also occur in adults in connection with such diseases as cancer, phthisis, or typhoid fever.

NURSING.—For milder forms, cleaning the mouth with warm water after each meal, followed by the application of glycerine and borax, will suffice. To guard against the danger of contagion to others, it is well to boil the spoons and other utensils, and the mother's nipples should be carefully washed. The physician will also order medicine for the diarrhœa.

Red Gum (Strophulus).—This occurs frequently in children from five months to two years of age, more rarely later. It is seen as a raised, sharply defined, round, pale, hard papule, the centre of which may look like a tiny blister, which, however, contains no fluid. It is often associated with ordinary nettle-rash. The scratching which its irritation causes often alters the appearance of the parts.

The cause is in many cases dietetic, and the amount

of sugar or milk may need supervision. Possibly the irritation of flannel next to the skin may occasionally be the cause. These cases are improved by the administration of magnesia internally, and the application of a carbonate of soda or other lotion to the skin.

Geographical Tongue.—The surface of the tongue is covered by whitish rings or crescents, which, as they disappear from one part, reappear in another. Such a condition may recur at various times for some years, but eventually disappears altogether. Occasionally the tongue is tender.

NURSING.—Chlorate of potash is usually employed, although as a rule no treatment is required.

Cancrum Oris.—This is a very serious condition, consisting of a hard swelling in the cheek or gum, which rapidly extends into the tissues. This may cause great destruction, even to the extent of perforation. An arrest may be only temporary, and be followed by another outbreak from the edge of the ulcer. Unpleasant-smelling saliva dribbles from the mouth, which is opened with difficulty. Seventy-five per cent. of the cases terminate fatally.

The most frequent antecedent illness is measles, but pneumonia, diphtheria, scarlatina, and typhoid fever, and general unhygienic conditions are considered by some observers to be causes. Although the child usually becomes quickly prostrated, the disease occasionally develops without the appearance of serious illness. Children between the age of two and five years are most commonly affected.

NURSING.—The child should lie on its stomach a little towards the side on which the face is affected, to prevent the discharge descending into the lungs.

The head should hang slightly over the side of the bed. Surgical measures are at once carried out, and suitable lotions applied. The strength is maintained by liquid nourishment. Occasionally the food has to be administered by introducing a tube through the ulcer, or by nasal feeding. Failing this, predigested food can be given by enemata.

Enlargement of the Tonsils and Adenoids.—The signs which suggest this condition are snoring at night, sleeping with the mouth open, and a particular disposition to catch colds frequently. The nurse should watch carefully for any of these, as their existence may persuade the doctor to operate. Neglect of tolerably bad cases may lead to enlarged glands in the neck, or even to deformity of the chest. The child is often mentally dull. The improvement of the general condition after operation is most striking; a stupid child will often develop into a bright, intelligent, healthy being.

After the operation the child should be kept indoors for at least two or three days, and fed on liquid diet for the first twenty-four hours. If there is any tendency to hæmorrhage, it is wise to allow only iced milk (see Chapter XVI).

Dentition.—The nurse will find it useful to know the approximate dates at which teeth appear. Although ill-health, such as rickets, causes delay, it must be remembered there are wide ranges as to the date in healthy children, but they usually have cut all their milk teeth—that is, twenty—by the end of the second year. They appear in the following order:

7th month	.	Lower central incisors.
8th	„	Upper „ „
9th	„	Upper lateral „

10th to 12th month	.	Lower lateral incisors.
14th „	.	First temporary molars.
18th „	.	Canines.
22nd to 24th „	.	Second temporary molars.

The permanent teeth, numbering thirty-two, appear in the following order:

7th year	.	First molar.
8th „	.	Central incisors.
9th „	.	Lateral „
10th „	.	First bicuspid.
11th to 13th „	.	Second „
11th to 15th „	.	Canines.
13th „	.	Second molars.
18th to 24th „	.	Wisdom teeth.

Congenital Hypertrophy of the Pylorus.—In this condition, the opening of the stomach into the intestine (see p. 116) is contracted, so that there is great obstruction to the passage of food. It is usually first noticed when the child is four to eight weeks of age, that the food is vomited out of the mouth with very considerable force a certain time after each of the meals; the bowels are constipated, and only a little urine is passed. Extreme wasting ensues. A fullness may be noticed in the region of the stomach soon after the meal, and perhaps, a wave may be observed passing across the upper part of the abdomen from left to right.

NURSING.—Should the doctor decide to treat the case medically he will order the child's stomach to be washed out night and morning for some weeks. This treatment is persisted in until the fluid returns perfectly clear, and then some food is usually passed into the stomach

through the funnel and tube before it is withdrawn. Apparently hopeless cases progress extremely well under treatment. Surgical interference is sometimes called for.

Feverish Attacks.—Nurses experienced in children's complaints must have frequently observed how the temperature may suddenly rise from slight causes. A highly strung child may, in particular, develop sudden rises of temperature when he is in the slightest degree excited or upset. In short, one can say that not only does a small cause suffice, with certain children, to bring up the temperature several degrees above normal, but illnesses which result in a moderate rise only in adults will most likely produce a higher degree of fever in a child. Among the many causes of feverish attacks of doubtful origin may be mentioned teething, tonsillitis, rheumatism, influenza, ear disease, kidney disease, indigestion, or the early stages of serious conditions which are not yet sufficiently advanced to be diagnosed. The last category would include certain infectious fevers.

NURSING.—In doubtful cases it is better to take proper precautions, not only for the sake of the child, but for that of other members of the household. As a routine treatment when nothing definite is seen, and subject to medical approval, rest in bed, liquid diet, and a dose of fluid magnesia are advisable.

Nose-bleeding (Epistaxis).—Bleeding from the nose is of fairly frequent occurrence in children. It may be due to injury, adenoids, hæmophilia, purpura, heart disease, kidney disease, or it may occur early in typhoid fever, whooping-cough, or pneumonia. (For treatment see p. 145.)

Laryngismus Stridulus (Child-crowing).—A complaint generally associated with rickets. It is possible that teething plays a prominent part in its causation. Most of the children affected are under nine months, but cases are met with up to the age of two years.

During an attack the infant throws back its head, the lips and face become livid, small convulsive movements may be noticed in the face, while the chest remains motionless. Just as suffocation appears imminent the spasm relaxes, and air is drawn into the lungs with a crowing noise. After the attack, the child may cry for a short time, or it may seem uncomfortable, or even have a general convulsion, or tetany. The danger to life of an attack is very slight.

NURSING.—The child should be placed alternately into hot and cold baths. Whilst these are being prepared, hot sponges may be applied to the neck. The child should be kept quiet in a well-ventilated room for a few days. After the attack has ceased, a purge should be given. Subsequently, appropriate treatment of the rickets is undertaken. Should there be any exciting cause, such as dentition, the attention of the doctor should be drawn to it.

Croup.—This may be true croup, which is usually a diphtheritic condition, or false croup, due to child-crowing, congenital laryngeal stridor, catarrhal spasm, or acute or chronic laryngitis.

N.B.—As stated elsewhere, it is best to avoid using the word “croup” at all.

Laryngitis Stridulosa.—In this condition the child has suffered from a slight cold, or from tonsillitis for a day or two. He then wakes up suddenly one night

with a very hoarse cough, and with some difficulty in breathing, due to a super-added spasm of the larynx. After a few minutes, or perhaps half an hour, the spasm passes off, and at the same time the brassy cough is relieved. The child will then go to sleep. A second attack in one night is rare. The cough remains for one or two days, and then the condition subsides. Frequently the child wakes up for two or three nights with a brassy cough. These children are usually about nine months to three years of age, or sometimes older, and are frequently subject to asthma.

NURSING.—When an attack occurs, the temperature of the room should be warmed to 65° F., and the bed, generally a tent bed (Fig. 4), moved nearer to the fire. A steam kettle on the fire is advisable. A teaspoonful of ipecacuanha wine is given to make the child vomit. Hot milk, sipped slowly, often affords relief. As the child recovers, it can gradually be moved farther from the fireplace.

Laryngitis.—Occurs in an acute or chronic form. The former is generally of the simple variety, but it must be borne in mind that sometimes it is membranous, and due to diphtheria. The chronic form is often due to syphilis.

Acute simple laryngitis may be caused by exposure, whooping-cough, measles, or scarlatina (see p. 145).

NURSING.—The child must be kept in a warm room at about 62° F. A steam kettle is fixed so that the steam comes near to the patient's bed, which should be surrounded by a tent (Fig. 4). Friar's balsam is usually placed in the steam kettle to impregnate the vapour with its odour. Sometimes emetics are ordered. Ice-cold compresses may be applied to the throat. The

food should be liquid, and the bowels must be kept open. Occasionally tracheotomy becomes necessary (see also p. 90).

Enlarged Glands in the Neck.—This is a condition very frequently seen in children. The causes of enlargement are numerous, the most important being certain infectious diseases, tonsillitis, bad teeth, tuberculosis, lymphadenoma, &c.

NURSING.—In each case the cause must be ascertained and treatment carried out accordingly. Tuberculous cases need plenty of fresh air, sunshine, and adequate rest. Sea air is especially useful. The diet must be liberal, consisting largely of pure milk, fresh eggs, milk puddings, fish, chicken, and bread and butter. The patient must be warmly clad without being in any way over-wrapped; proper attention to the teeth, tonsils, and general health are important. A daily bath should be a routine practice. Lastly the child should sleep with the window open, care being taken to prevent him from catching cold.

Tabes Mesenterica.—This is another tuberculous condition, the mesenteric glands being affected.

SIGNS AND SYMPTOMS.—The child rapidly wastes. The temperature rises at night, the abdomen increases in size, griping pain is felt after meals, and diarrhœa is generally present.

NURSING.—The best diet for these cases consists of mutton broth, beef juice, fish, and eggs. Milk is given sparingly if it is found to agree with the patient. Maltine may be ordered by the doctor, without whose sanction no other drugs or food should be given. The diet and digestion need careful watching, and the child should be weighed at half-weekly intervals. Rest in

bed and plenty of pure fresh air are necessary adjuncts in the treatment.

The Urine of Children.—The urine is usually paler than is the case with adults. The amount passed in the twenty-four hours, from the eighth to the thirty-sixth week, varies from seven to sixteen or eighteen ounces. The specific gravity in children from one year onwards may be higher than in adults, and read 1030 or thereabouts.

Blood in urine occurs in purpuric conditions, scurvy, stone in the kidney or bladder, &c.

Temporary suppression of urine is a not infrequent occurrence in infants. The infant must remain in bed and be kept warm; hot fomentations should be applied to the abdomen, and plenty of milk and water be given to drink. Sometimes older children pass only a very small amount of urine, or even none at all for a few hours.

Some children pass very large quantities of urine daily, as in the disease called diabetes insipidus. In diabetes mellitus, urine containing sugar is passed. Turbidity of the urine may be due to pus; this condition should always be reported to the doctor.

Bed-wetting (Enuresis).—Various conditions may be the cause of this complaint, such as laziness, drinking too much liquid before being put to bed at night, not properly emptying the bladder, too rapid secretion by the kidneys, the condition of the urine itself, a too comfortable bed, an over-sensitive nervous system, constipation, worms, epilepsy, rheumatism, &c. The enumeration of the causes will convey to the nurse not only an idea of the difficulty of treatment, but also the lines upon which it must be conducted, quite apart

from the use of the drugs prescribed. The nurse's observations will be of great help in the treatment, which must naturally be directed to the particular cause.

NURSING.—Upon general principles one would advise the restriction of liquids after 4 P.M. Restriction of salt in the diet and of all bitter and sour articles is advisable. The child must be made to empty the bladder immediately before being put to bed, and awakened at 10 P.M., and again early in the morning, for the same purpose. The bowels must be opened daily. The bed should have a firm mattress; in older children a daily cold bath is advisable. On no account should the child be punished; a tactful talk with the child may, on the other hand, lead to immediate improvement. Some children quickly yield to treatment, in others the habit persists for years, and may not cease before puberty.

Incontinence of Fæces.—This condition may occur with incontinence of urine, although the child is generally troubled with incontinence of fæces during the daytime. Many of the children who suffer from this complaint seem to exhibit signs of some mental deficiency, such as sullenness, outbursts of temper, or unnatural timidity. Careful training is the best line to take in the treatment of this condition.

Water on the Brain (Hydrocephalus).—The head appears more globular and larger than normal; the forehead and sides of the head are prominent; the fontanelles are large, and the skull bones may not come into contact. The skull is enlarged on account of the accumulation of fluid inside the brain cavities. In these circumstances the face appears to be extremely

small. The congenital variety of hydrocephalus is frequently found associated with other congenital abnormalities, such as spina bifida, talipes, &c. The intelligence may be normal, or may be greatly wanting, and various other nervous manifestations may be present in connection with the limbs and other parts. Convulsions, too, may occur. Cases have been reported which appeared to improve, but the majority die during early childhood.

Cerebral Palsies.—Under this heading are included various forms of paralysis occurring in children, such as paralysis of the arm and leg of one side of the body (hemiplegia), the paralysis of both legs (paraplegia), and paralysis of all the four limbs (diplegia). The last two varieties are, as a rule, congenital, but the first appears at any time after birth. The intelligence suffers, more or less, in all these cases.

Muscular Atrophy (Pseudo-hypertrophic Paralysis)
(see p. 206).

Head-nodding.—This includes either pure vertical nodding or various side-to-side movements of the head. The movements are regular, and at the rate of about one per second. After about fifteen seconds the movements usually stop for a short time and then begin again. If the child's attention be suddenly attracted they will stop, but will resume in a few seconds. They are associated with a peculiar oscillation of the eyes, called nystagmus. Head-nodding starts between the ages of six months and a year, and may continue for a few months, but is rarely seen after the age of eighteen months. The affection is apparently quite harmless. Various conditions have been thought to play a part in

its causation, such as rickets, teething, and falls on the head.

Stiff Neck (Wry Neck, or Torticollis).—This may be due to exposure to cold, or to rheumatism, or to many other causes. It is apt to be a distinctly painful condition while it lasts. A condition which may be mistaken for the above is that of hæmorrhage into a sternomastoid muscle, which is occasionally found in infants.

NURSING.—Hot fomentations can be applied, or liniments can be well rubbed into the affected side. Antirheumatic or other treatment is also administered.

Infantile Convulsions.—The convulsions may occur a few days after birth, at a few weeks old, or again, at any time from the age of seven to twelve months.

CAUSES.—In young infants they may usually be attributed to digestive disturbances: later on dentition, rickets, brain-disease, fevers, worms, or excitement are the common causes. It is not certain whether convulsions have a definite association with epilepsy.

SIGNS AND SYMPTOMS.—The symptoms of infantile convulsions are pallor, deviation upwards of the eyes, catching of the breath, blueness or lividity of the face or lips. There may or may not be a cry. Occasionally children lose consciousness. In some children convulsions are represented by twitchings only, for which the nurse must be on the look-out.

As may be gathered from the various causes, convulsions vary in their seriousness, and may even be followed by death.

NURSING.—During the convulsions the child should be quickly put alternately into baths hot and cold, a treatment which is often efficacious. A purge should be administered. A dose of ipecacuanha wine, by pro-

ducing vomiting, will often give relief. An ice-bag to the head is most useful. The special medicine ordered by the doctor may have to be given by the rectum.

Tetany.—Infants are more prone to this complaint than older children, and far more so than adults. It is frequently associated with rickets, and is in many instances preceded by some gastro-intestinal disturbance.

During an attack the hands are pronated, the thumb being placed in the palm of the hand between the ring and middle fingers. The fingers are held very close together and extended, so that the hand looks cone-shaped. The elbows are bent, and the legs and feet extended. As a rule, there is no pain from the spasm, and the child may, even during the attack, attempt to play with its toys. The condition may last for a few days intermittently, or continuously; facial irritability and child-crowing are often associated with tetany.

Tetany is not usually a fatal affection, unless the cause of it, or some associated condition, be of serious import.

NURSING.—In older children, gentle manipulation by the nurse of the affected parts may prove efficacious. The spasm can also be relieved by hot and cold baths. The cause is always treated, and in addition the doctor may order a mixture containing bromides. In more severe cases, chloroform may be necessary.

Night Terror.—Neurotic, excitable, or rheumatic children are sometimes liable to wake suddenly at night and cry out in terror. Gastro-intestinal disturbance or adenoids may play an important part in the causation of such an attack.

SIGNS AND SYMPTOMS.—During an attack, the child, imagining that he sees some strange animal or person, starts up in bed, screams, or, perhaps, talks wildly about his apparitions, but he is not quite awake, and may not recognise his nurse. Probably there will be no remembrance of it next morning. In addition to treating the cause, tonics are administered.

Day Terror.—This condition is similar to night terror, only occurring during the day. The child may be wildly excited, and even maniacal. No ill effects are left behind by these attacks.

Habit Spasms.—Among habit spasms are included various manifestations, such as grimaces or contortions of the face, movements of the nose, blinking of the eyes, swaying of the body, or peculiar leg or arm movements. It is a quite separate condition from chorea. Unless some cause, such as defective vision, is present the child should be corrected, and this, with the addition of tonics, will generally suffice.

Cretinism.—In this disease the thyroid gland is either entirely absent or deficient. The child does not grow like other children, but remains stunted. The head is broad, the face large, and there is a depression at the bridge of the nose. The mouth is usually open, the tongue seems too large and protrudes. The abdomen is large and prominent, often with an umbilical hernia. The hands have a flattened appearance. The skin is harsh, thick, and generally wrinkled. The hair is scanty and coarse. The mind may be almost a blank, and the child may live an almost animal existence. It is exceedingly susceptible to the cold.

NURSING.—The thyroid gland of the sheep, when

given by the mouth, in the form of tablets, produces remarkable improvement. If given early enough, the cretin at once begins to grow, both physically and mentally (see p. 179).

Chorea (St. Vitus's Dance).—This is relatively infrequent, except in children, and girls are more commonly affected than boys. As a rule, there is a history of rheumatism or growing pains. In many cases, the onset of symptoms is dated from a mental shock or fright. The child first appears to have become careless, and to drop things. Then irregular, jerky movements of the arms or legs are seen, with twitching of the face and lips. There is always a certain amount of weakness of the affected parts. The movements cease during sleep, and are increased by any mental excitement. The mind is also affected, so that the child appears dull.

Cases occur which represent all degrees of severity; feeding becomes very difficult, and sleeplessness may also be present. Recovery occurs, although the illness may be of long duration, but unfortunately recurrences are frequent.

NURSING.—It is important to isolate every case of chorea, by putting the patient to bed in a room alone, or surrounded with screens. The child must be kept perfectly quiet and free from excitement. In particular, no mental exercises of any kind should be permitted. A milk diet is probably the best. The bowels must be kept regular and the special medicine given. Any special weakness will receive appropriate treatment in the form of gentle massage. A child who has rested well in bed is less likely subsequently to develop heart disease than one who has been allowed to run about.

In severe cases the child may have to be fed and kept in a bed provided with sides to prevent her falling out.

Infantile Scurvy (Scurvy Rickets).—Children who have been fed on certain proprietary foods run a distinct risk of developing this serious complaint, which is never seen in an entirely breast-fed baby.

The cause of the disease is certainly the absence of some essential factor in the food. It is most frequently seen from the sixth to the twelfth month, and very few instances occur after the first year.

SIGNS AND SYMPTOMS.—The child lies on its back, with its legs slightly drawn upwards and outwards, so that the knees are well separated. It is obviously tender all over, and resents being touched or moved. Hard swellings may be found in one or both thighs, and, when teeth are present, hæmorrhages will probably be seen at the junction of the gums and front teeth. Hæmorrhages may occur in the eyelids and elsewhere. The urine may contain blood. Signs of rickets are present.

NURSING.—The child improves quickly if a suitable diet is instituted early enough. Keep the child very quiet and comfortable in its cot, give it fresh cow's milk, and either grape or orange juice twice daily, or, if preferred, potato-cream. In a few days the tenderness diminishes, and although the duration of cure may be long and tedious, the result in most cases is excellent.

Hæmophilia.—Hæmophilia is a peculiar disease, in which a remarkable liability to bleed exists, so that slight injuries may be serious, and even fatal. The condition really consists in the inability of the blood to clot; bleeding is always very difficult to stop. It

is a disease which appears in males, but is transmitted by females, so that a father who is a bleeder transmits it to his grandsons only through his daughters, his own sons escaping. Some authorities insist that genuine cases of hæmophilia occur in women.

SIGNS AND SYMPTOMS.—Hæmophilic children look quite healthy, save for the anæmia from which they may suffer after a severe hæmorrhage. The tendency to bleed is apt to show itself within the first year of life in the form of nose or mouth-bleeding, or often as unaccountable “bruises” beneath the skin. Bleeding frequently occurs into joints. Any trivial operation, such as the extraction of a tooth, may be a serious event. The tendency to hæmophilia persists throughout life.

NURSING.—Great care must be exercised to prevent a sufferer from being injured in any way. Good plain food, with sufficiency of milk and warm clothing, are essential, and a warm climate desirable. If bleeding occurs, absolute rest, cold, and pressure to the part may stop it in time, and frequently adrenalin solution (1-1000) acts very quickly if applied direct to the bleeding part.

Rickets.—It is a mistake to suppose that this disease attacks only the children of the poorer classes of our large towns, as under the conditions which dispose to rickets any child in any class of society may be a sufferer. The chief causes are improper feeding, especially with those foods containing too much starch and too little fat; want of sufficient fresh air in the living-rooms; and insufficient outdoor life and general uncleanness.

SIGNS AND SYMPTOMS.—These generally appear between the ages of six and twenty-four months. Among

the early symptoms are restlessness, a tendency to throw off the bedclothes, sweating of the head and neck, meaningless crying, diarrhœa, flabby muscles, with excess of fat and enlarged abdomen. In due time the abdomen becomes enlarged and bony changes occur, the chief being beaded ribs, enlargement at the wrist and ankle-joints, and a square rickety head with open fontanelle. The face is sallow, and there is a special liability to tetany and laryngismus stridulus. The teeth are late in appearing, and are liable to decay. Irritability is usual. Should the disease still continue to progress, wasting becomes a prominent symptom, the long bones curve, and deformities of the chest and spine appear. Bronchitis may be very troublesome, diarrhœa, pneumonia, or convulsions may be present as complications.

NURSING.—In a case of rickets the nurse can do a great deal by making a careful inquiry into the exact conditions of the child's life. Children should wear flannel next the skin by day and by night. In nearly all cases correct feeding has to be instituted (see p. 238). Any patent food used should be discontinued. If the child is over a year old, and is still being breast-fed, weaning is necessary, as the mother's milk will almost certainly have deteriorated. A good, wholesome, fresh milk, with its full complement of cream, is substituted. Some cases need cod-liver oil or "Virol." Red gravy, bacon fat, and a soft-boiled egg are most useful as daily additions to the diet if the child is old enough to take them. Milk or suet pudding and boiled fish can be given when the child is old enough. Plenty of fresh air and cleanliness are important adjuncts in the treatment. If the legs have already suffered, as is characterised by bowing, every effort must be made

to prevent the child putting his weight upon them. If they cannot walk, they should be placed in a perambulator in which they can lie down flat. It is unwise to carry them in the arms. Children with bow legs or knock-knees should not be allowed to stand, crawl, or walk. Warm clothing and regularity of the bowels are two hygienic necessities. Complications, such as diarrhoea or bronchitis, require appropriate treatment.

Congenital Syphilis.—This disease may manifest itself in many ways, such as a copper-coloured rash on the buttocks, thighs, back, or abdomen, a scaly rash on the soles of the feet or palms of the hands, snuffles, a cry which is almost hoarse, fissures about the mouth or anus, condylomata about the anus, and various bony affections. There is also a peculiar wizened old-man appearance of the face, the food may be badly taken, and wasting is invariable.

NURSING.—The nurse must take every precaution to prevent herself and anybody else who may come into contact with the child from contracting this disease. If the mother cannot feed her own child, it must be weaned immediately. On no consideration whatever is it right for a wet nurse to run the risk of feeding a syphilitic child.

Antisyphilitic remedies should be used.

CHAPTER XIV

AFFECTIONS OF THE SKIN

DISEASES of the skin are of such frequent occurrence that it is essential for the nurse to be familiar with the names and symptoms of the commoner varieties, although in actual practice the nursing seldom plays an important part. No attempt has been made to give an account of all the skin affections, most of which are difficult to recognise, and some of which are exceedingly rare. This section forms a convenient place to consider such affections of the skin as burns, bruises, bites, stings, &c., in addition to the rashes and other skin diseases.

In conclusion, a nurse should always think of the following causes of rashes occurring in children before considering the possibility of an acute specific fever :

1. Sweat, flannel, or vest rash—usually following the use of new underclothes.
2. Digestive troubles: teething in children, the ingestion of bad food, such as fish.
3. Drugs by the mouth, or an enema.
4. Insect bites.

Before considering skin affections, the nurse should understand the meaning of the following words:—

Erythema means a blushing of the skin, and when this is so small as to be no bigger than a pin's head, it is called a **Macule**.

Papules or Pimples are small, slightly raised, red spots.

Vesicles resemble papules, except that the apex of the spot has a small cavity resembling a minute blister, containing a clear-coloured fluid.

Blebs or Bullæ are large blisters.

Pustules are similar to vesicles, but the cavity at the top of the papule is full of pus.

An **Ulcer** is due to loss of substance of the skin exposing a cavity from which pus exudes.

Scabs are dried matter occurring after vesicles or pustules have broken and discharged their contents.

Cicatrix is an alternative word for a scar occurring after an ulcer, pustule, &c., has healed.

Petechia is a small spot about the size of a pin's head, of a purple red colour, due to a minute effusion of blood under the skin.

Ecchymosis is a similar condition to a petechia, but occupying a much larger area of the skin. **A bruise** is sometimes referred to by this name.

On the following pages the affections of the skin will be found arranged in alphabetical order for purposes of easy reference.

Acne.—This is more commonly known by the term “blackheads.” It generally occurs about puberty in young men and women, and only occasionally lasts after the age of thirty.

NURSING.—Albion milk and sulphur soaps should be used, or the face should be washed with oatmeal water

only. Steaming the face with hot water is also beneficial. The contents of the black spots should be periodically squeezed out by pressure after steaming. The bowels must be attended to, and for this purpose a preparation of sulphur is frequently employed. More recently a vaccine has been tried.

Alopecia means baldness. This may be either complete or in patches. The actual cause is not known. It is a very intractable condition, which may require medicine for the general health as well as local stimulation.

Angio-neurotic Œdema.—Swellings appear in different parts of the body, limbs, or face, without any so far discovered cause. After a few hours they disappear.

Bites by Mosquito and Gnat.—These are best treated by applying a little ammonia solution. If eucalyptus or oil of lavender is rubbed on the skin it sometimes prevents the gnats biting.

Blisters.—Blistering can occur in connection with burns, eczema, and other conditions, but the varieties referred to under this heading are those blisters occurring either as the result of injury, trauma, unusual exercise, or walking.

If the blister is large it should be cut at one end with scissors. After the fluid has escaped, boracic powder is dusted over it, and it is bound up. If the blister is a small one, a plain corn-plaster can be applied so as to encircle and protect the blister. When blisters occur on the feet, the soles and inside of the socks should be rubbed over with slightly moistened yellow soap. Soaking the feet in weak Condy's fluid and careful drying also assists.

Boils.—These can occur anywhere, but most usually on the back of the neck. There is a popular superstition that they are due to either too rich or too poor blood, but as a matter of fact they always occur during ill-health.

A boil begins as a red painful pimple, which gradually gets harder and larger, and finally shows a small white-head of pus. After this has discharged the inflammation disappears, and a small scar is left. Tonics should be given, whilst hot applications should be applied locally. In bad cases vaccines are tried.

Bruising.—This results from a blow or a fall. A red swelling first appears, which changes in colour, becoming so dark as to occasionally appear black, and eventually yellow. Ice or cold water should be applied to the part; a piece of lint soaked in eau-de-Cologne, or a handkerchief dipped in water, can be placed lightly over the area. After a few hours cotton-wool is bandaged over the bruise.

Bugs.—The treatment is the same as for pediculi, which see (p. 275).

Bunions are corns, possessing a small fluid swelling underneath them. The treatment is the same as for corns.

Carbuncles.—This is a similar condition to boils, except that the swelling is much larger, and the constitutional symptoms are more marked. It is sometimes found in connection with diabetes. The treatment is largely surgical.

Chilblains.—Cod-liver oil should be given internally whilst locally, if seen early enough, iodine should be

painted on, but this is never done when the skin is broken. Friar's balsam or carbolic ointment are useful in the later stages.

Corns.—There are many simple remedies for corns, and the only points in the nursing to be considered are:

1. That it is unwise to cut a corn so that it bleeds, for fear of infecting the foot by means of the dye of the stocking.
2. That local applications may be dangerous if they are applied indiscriminately. A very sore toe may result from the application of acetic acid. The best method is to place over the corn a ring of cotton-wool, and protect it from pressure.
3. Corns nearly always arise from ill-fitting boots, and if these are changed the corns will disappear.

The following simple paint will be found an excellent remedy:

Acidi Salicylici	.	.	.	3 i
Ext. Cannabis indicæ	.	.	grs. v	
Collodion	.	.	.	3 i

Dog Bites.—If it is a limb which is bitten, a handkerchief should be tied tightly round above the wound. The wound should be well squeezed, so as to cause bleeding, and placed, if possible, under running water (hot for choice). If no water is at hand the blood should be sucked from the wound and expectorated. To assist in the bleeding, the limb can be massaged downwards towards the bite. Some strong acid or alkali, such as carbolic, nitric, potash, soda, &c., should be procured as soon as possible, and applied to the wound. After removing the ligature, handkerchief, or

tape which was tied round above the bite, it is dressed by placing some soothing ointment, lint, and a bandage over the wound. There is little danger of hydrophobia, since dogs with rabies are now never met with in England, but should such a rare occurrence take place, then Pasteur's treatment by inoculation should be resorted to as soon as possible.

Drug Rashes.—As will have been gathered from the description of the effects of drugs given in Chapter III, rashes occasionally occur. Of these the most important are those occurring after bromides and iodides, which resemble acne. Arsenic, belladonna, copaiba, and quinine are examples of the many other drugs causing skin eruptions. It must be remembered that these rashes may occur from external applications as well as internal administrations.

Eczema in Children.—The usual form of eczema found in young children begins near the anterior fontanelle of the skull, extends over the scalp to the ears, down the neck to the chest, and if not cured, may cover the whole body, and so eventually become a serious condition. Fortunately it very rarely reaches this stage, as it is generally amenable to treatment before it has advanced very far. Eczema of a type resembling that found in adults is seen in children, and, further, it is sometimes met with in association with scabies and body-lice.

Eczema in Adults.—The varieties of eczema met with in adults are too many to enumerate. The causes are extremely numerous. Heredity plays a part: factors in its causation may be certain occupations, ill-health, such as gout, nephritis, and various forms of irritants.

There is itching, accompanied by redness, with perhaps the presence of vesicles. If these burst it is known as Weeping Eczema, as opposed to Dry Eczema, where no exudation takes place. Crusts form later.

LOCAL TREATMENT.—The spots must be protected from scratching, irritation, and the atmosphere. Various ointments, powders, and lotions are used to soothe the lesions.

Erythema Nodosum.—This generally occurs in children, and consists of reddish, painful, tender swellings on the shin-bones and fore-arms. These swellings, at first of a deep red colour, undergo changes similar to those of a bruise.

NURSING consists in applying locally lotio plumbi, and perhaps in administering salicylates internally.

Herpes, or Shingles.—The eruption generally appears on one side of the chest, running round an intercostal space. Pain is often felt in the situation where the vesicles subsequently appear. The latter are very irritable and often painful. They disappear after about a week. In older people intractable neuralgia may persist in the situation of the scars. *Herpes Facialis* is the name given to an eruption of vesicles in the region of the lips. This condition is common in colds, influenza, and pneumonia.

NURSING.—The spots should be powdered with zinc oxide or starch, or painted with collodion in the early stage. When the vesicles burst, zinc ointment should be applied.

Impetigo Contagiosa.—This condition is characterised by small irritable spots which are quickly covered by scabs. They are most usually seen on the

face, and a common cause is the head louse. Fresh spots appear in various parts of the body as the result of infection conveyed by the fingers of the patient after scratching.

NURSING.—The crusts should be removed by means of starch poultices or soaking with oil, and a weak anti-septic ointment, such as ammoniated mercury, should then be continuously applied.

Lice.—See “Nits” and “Pediculi” (p. 275).

Lichen.—Small raised burnished spots appear on the wrists and the inner side of the thighs. Itching is very marked.

NURSING.—Lotions of tar or carbolic acid will soothe the itching, and in more obstinate cases, tar ointment, salicylic ointment, or even X-rays may be tried.

Lupus is more common among the poorer classes. It begins as a small brownish spot which gradually enlarges and ulcerates. It is most frequently found on the face, and if untreated, leads to great destruction and scarring.

NURSING consists in the administration of cod-liver oil, tonics, and possibly tuberculin injections, whilst locally X-rays or Finsen's light are infinitely superior to caustics or to surgical treatment.

Lupus Erythematosus.—Occurs more often in women than men, and shows itself as a red patch on the nose and cheek, resembling in shape a butterfly.

Nævus, birth or port-wine mark, is due to dilated capillaries, which appear on various parts of the body in newly-born infants. The treatment is surgical.

Nettle-rash (Urticaria) is a fairly common complaint among children, and is usually due to some gastro-

intestinal disturbance following errors of diet. It shows itself first by the formation of white wheals surrounded by a red area; after a short time the wheals become red. The condition is very irritable, and gives rise to much scratching. If the particular food causing the rash can be ascertained, it must be subsequently avoided. Give a dose of opening medicine, and apply a solution of bicarbonate of soda to the spots as often as may be necessary.

Nits (Pediculi Capitis).—The causal agent is a little insect, the head louse, which is found on the scalp, and which is known to be present by its elongated ova or eggs attached to the hair. The irritation which it causes gives rise to scratching, and thus to dissemination. Pustules may be found on the scalp. The glands at the back of the neck are sometimes enlarged. Every precaution should be taken to prevent the lice being spread, and therefore no other person must be allowed to wear the hat, &c., of an infected child. The patient's own hat should be baked, and a special cap substituted, made of washable material. The hair is cut quite short. Oil of sassafras or ammoniated mercury ointment is usually applied to the head at night, and the scalp well washed with carbolic soap or warm vinegar and water next morning, a fine comb being used if necessary to detach the nits from the hair. Sometimes the treatment has to be repeated many times before an absolute cure is attained.

Pediculi or Lice may infect the head (see "Nits" above), the clothes, or the pubic hairs. A person becomes infected by sleeping in a dirty bed or by coming into close contact with patients who are infected. The insects can be readily destroyed by the

application of petrol, paraffin, or turpentine. Mercurial ointment is commonly used for the pubic hairs. All infested clothes should be boiled or baked or destroyed by burning, and fresh clean clothing put on. Occasions may arise when it is impossible to follow out the above plan—for example, during war. In these circumstances the underclothes may be scalded once in ten days—coats, waistcoats, and trousers can be turned inside out so that their seams can be exposed to as much heat as possible before a fire, against a boiler, or a jet of steam. Paraffin, or, if available, a hot flat-iron, may be used to kill vermin in clothes.

Pemphigus occurs at all ages, but generally in children. Itching blisters containing a yellowish fluid occur all over the body. The blebs burst and leave scarring. The nursing is the same as for herpes.

Perspiring Feet.—A powder containing talc and salicylic acid or lysiform may be useful. Bathing the feet in Condyl's Fluid or weak formalin is often very soothing.

Pruritus means itching, and when vesicles are present with the irritation it is called **Prurigo**.

Psoriasis.—The eruption appears as scaly patches, generally over the elbows and knees, but in some cases spreading over the whole body. Itching is not very marked. The cause of the disease is not properly understood. Outbreaks frequently occur in the spring, and some people consider gout a factor. Nervous disturbance is frequently an antecedent.

NURSING.—Arsenic is often given internally. Externally tar in the form of lotion or ointment, and many other ointments, such as chrysarobin, may be used.

Psoriasis is usually a very chronic condition, and exceedingly resistant to treatment.

Purpura.—In this condition effusions of blood occur under the skin, resembling petechiæ or ecchymoses (see p. 268), or in severe cases from the mucous membranes.

Ringworm (Tinea).—This occurs in two forms—(a) on the scalp (*tinea tonsurans*), and (b) on the body (*tinea circinata*). The causal agent is a fungus. On the scalp round, scaly patches are seen, with broken hairs, and some degree of localised baldness. Pus may rarely be found in the patch. Great care is necessary to prevent its spreading to other children, and therefore no one else should wear the affected child's hat, or touch anything which has been near the ringworm area. As a simple remedy, keeping the hair round the part short, and the application of tincture of iodine, will be all that is necessary in many cases. In severe cases X-rays may be ordered. Special washable caps ought to be made for the child, and his head should be washed in carbolic soap every morning.

Scalds or Burns.—The clothing must be cut away from the neighbourhood of the injured part, and olive oil or castor oil poured over it. The air must be excluded from the burned area. If the clothing is on fire, the patient should at once be placed flat upon the floor, rolled in a blanket, hearthrug, curtain, or any large article of clothing, such as an overcoat. Whilst this is being done, an assistant should procure water with which to quench the fire. In performing this operation, the nurse should be careful not to allow her own clothing to catch fire. Shock is always present, and will require appropriate treatment.

Snake Bites.—It is unimportant to know whether the snake is poisonous or not. The bite should be treated in the same way as a dog-bite, but instead of applying an acid or alkali, it is more usual to place crystals of potassium permanganate directly into the wound. The doctor will inject anti-venin as early as he can.

Sore Feet.—See “Blisters” (p. 269), and “Perspiring Feet” (p. 276).

Stings from Bees and Wasps.—The affected part should be squeezed to eject the poisonous fluid, and if possible the sting. The application of spirits, such as whisky, to the affected part will generally give relief. The blue-bag will prove soothing if nothing else is to hand. Should the sting be inside the mouth, the doctor should be sent for at once.

Sweat Rash.—This, when present in children, is found at the root of the neck, the front of the chest, on the forehead, and behind the ears. The child needs to be more lightly clad, to be bathed regularly, and have a powder applied for a time.

The Itch (Scabies).—This is an exceedingly frequent complaint among the hospital class, and is occasionally seen also in private practice. It is due to the burrowing in the skin of a parasite called the “acarus.” The child scratches the irritating spots and disseminates the insect, thus aggravating the condition. Often starting between the roots of the fingers or toes, it may spread over the entire body, giving rise to an eczematous or pustular condition, the actual cause of which may not at first sight be detected.

NURSING.—The first part of the treatment is to

prevent anyone else catching this objectionable skin complaint, and forthwith the clothes should be baked in an oven or boiled, to kill the *acarus* and its eggs. The child can be bathed with carbolic soap, after which it is usual to apply a sulphur ointment. If the parts be inflamed or pustular, lead lotion is sometimes first applied. Every twenty-four or forty-eight hours the ointment is washed off in the bath.

Warts generally occur on the back of the hands, and may disappear spontaneously. They are contagious.

NURSING consists in the application of caustics, such as glacial acetic acid, nitrate of silver, &c., but great care must be exercised, as painful burns may result. X-rays will sometimes cure when all other remedies fail.

CHAPTER XV

THE CARE OF THE DEAD: DYING DECLARATIONS AND WILL MAKING

It frequently falls to the lot of the nurse to lay out the dead. This should be done as soon as it is certain that death has occurred, and after the relations and friends have left the room. The clothing must be taken off, and the body laid flat upon its back, the legs straightened out, and the arms placed by the sides. After about an hour the body should be washed, and the eyes closed. Gentle pressure on the eyelids for a few minutes will usually be sufficient to keep them closed, but if this is not the case, a pad of lint over each eye will make this more certain. The jaw should be tied up with a four-tailed bandage in which a slit is cut for the chin. The orifices are filled with plugs of cotton wool. The wishes of the relations should be consulted previously as to whether or not earrings, rings, or false teeth are to be removed. The hair is brushed and neatly plaited. A clean nightdress is placed on the body. Any wound must of course be dressed. The lower parts of the legs are usually tied together. A clean sheet is placed over the body. After some seven or eight hours the whole body gradually begins to stiffen. This change is known as *rigor mortis*. When this is complete it will persist for four or five days. As soon as this sets in, the nurse can remove the pads

from the eyes and the bandage from the face. The nurse, with due quietness and decorum, having seen that everything in the room is in order, and having completed her task, should be in no hurry to leave the house, for there is no doubt that she can in many little ways be of great assistance to the relations and friends. Only when she can assure herself that she can no longer be of service, or is perhaps in the way, should she quietly take her departure.

Although it is not part of a nurse's duties to register the death, it is useful for her to know the law concerning this, so that she can help the relatives if they are in doubt. A certificate should be obtained from the doctor and delivered to the Registrar within five days of the death. This duty must be undertaken by the nearest relative staying in the house, but if no relation is present, any person living in the house at the time of the death may convey the information and sign the register. Any responsible person mentioned above who fails to deliver a medical certificate to the Registrar after he has received it, is liable to a fine of £2. If the notice of death, accompanied by the medical certificate, is sent in writing, then further information need only be given within a fortnight, but the Registrar may require any of the above persons after this fortnight, and within twelve months of the death, to attend at his office and sign the register.

It may be the duty of the nurse to take the dying declaration of a patient, and should this be the case, she must note carefully the mental state of the patient, and the circumstances which have led to the declaration. Such a declaration can be used as evidence in a criminal court of law, provided that the patient is

conscious of being in a dying state, and has no hope whatever of ultimate recovery when he makes the statement. A statement should be taken from the patient when murder or manslaughter is the possible cause of his condition, or when the causes of death or any of the circumstances which occasioned it are the subject of the declaration. If the patient is afraid of immediate death from the causes then operating, he can make a declaration to the doctor, which can be used as evidence later on.

It will frequently happen that a patient may wish to make a will, and here again it will be useful for a nurse to be conversant with the necessary details. A will must be made in writing, and the signature of the testator, which must be at the end of the will immediately below the last line, must either be made or acknowledged by him in the presence of *two* witnesses present together at the same time. The witnesses must attest the signature of the testator in his presence. No beneficiary, or husband or wife of a beneficiary, should be a witness to the will. Should this occur, the remainder of the will, except for this legacy, would still be valid. No person under twenty-one years of age can make a will. Marriage after the making of a will renders the will void. The following will serve as an example of a will:

“I, _____ of _____ hereby revoke all former Wills, Codicils, and Testamentary instruments made by me, and declare this to be my last Will. I APPOINT _____ of _____ sole executor [*or executrix*] of this my Will. I DEVISE AND BEQUEATH all the estate and effects whatsoever and wheresoever, both real and personal, to which I may be entitled, or which I may have power to dispose of

at my decease, unto and to the use of A of
 h heirs executors and administrators respec-
 tively absolutely [*or if it is desired to divide the*
testator's estate and effects] unto and to the use
 of A of and B of their respective
 heirs executors and administrators as tenants in
 common in equal shares absolutely."

And the will should conclude as follows:

"IN WITNESS whereof I have hereunto set my hand
 this day of 1914
 [*Testator's signature.*]

"SIGNED by the above-named Testator [*or Testa-
 trix*] as his [*or her*] last Will in the presence of
 us present at the same time who in his [*or her*]
 presence and at his [*or her*] request and in the
 presence of each other have hereunto subscribed
 our names as witnesses."

Each witness should sign here his or her name, address,
 and description.

Where the testator, through illiteracy, cannot sign
 his name, he may make his mark, thus—

His
 JOHN + JONES.
 mark

or, as also may be done where through illness or blind-
 ness or other similar cause the testator cannot himself
 sign his name, the will may be signed in his name by
 some other person (for example, by one of the witnesses)
 in his presence and by his direction. Although the
 Wills Act does not require that the will in such cases
 be read over to the testator in the presence of the
 witnesses, as a precaution it is advisable to do so.

The following forms of attestation may then be used.
When the testator makes his mark :

“SIGNED by the above-named testator as his last will (the same having been read over to him in our presence) with his mark in the presence of us &c.,” as above.

When the will is signed by some other person with the testator's name :

“SIGNED by A. B. with the name of the above-named testator, as his last Will in his presence and by his direction (the same having been read over to him) in the presence of us &c.,” as before.

Alterations and erasures should be avoided as far as possible, but where such, from pressure of time or other cause, are inevitable, the signatures or initials of the testator and attesting witnesses should be placed near to, or opposite, every such alteration or erasure.

It is of great importance that the witnesses should state their addresses, so that it may be possible to trace them in the event of an affidavit being required as to the circumstances in which the will was made and signed.

CHAPTER XVI

MASSAGE

MASSAGE is applicable to the correction of morbid conditions in very nearly every part of the body, and the field of its efficacious use is being continually enlarged.

The following are some of the chief effects which massage attempts to produce :

1. THE MUSCULAR SYSTEM.—Restoration of function, efficiency, and development are effected because massage brings to the parts under treatment the arterial blood necessary for nutrition, and, at the same time, accelerates venous circulation, whereby waste products are eliminated and muscular fatigue is allayed.

2. THE NERVOUS SYSTEM.—In this connection massage has a twofold object : (*a*) stimulation ; (*b*) soothing influence, by which pain and nervous irritability are allayed.

3. CIRCULATION.—By massage, the circulation of blood and of lymph is accelerated. The withdrawal of blood to the surface relieves the congestion of the internal organs.

4. RESPIRATION.—The effect of massage is to increase respiration, by throwing additional work on the lungs. At the same time, internal or tissue respiration (*i.e.* exchange of gases) is increased in activity.

5. BONE FORMATION.—Bone is indirectly influenced

by massage, because growth and nutrition are advanced by the accelerated and improved circulation.

6. **DIGESTION.**—Massage exerts an influence upon the digestive system in two ways: (*a*) secretion of the digestive juices is stimulated; (*b*) peristaltic activity is promoted.

The effects of massage may be summed up as follows:

1. The promotion of nutrition. 2. The elimination of waste material. 3. The stimulation of skin functions. 4. An improved digestive capacity. 5. The reduction of swellings. 6. The prevention and breaking down of adhesions.

THE MOVEMENTS

There are many varieties of movements in massage, most of which come under one or other of the following headings:

1. Effleurage or stroking.
2. Petrissage or kneading.
3. Tapotement or percussion.
4. Frictions.
5. Vibration.

Effleurage.—The whole of the palmar surface of the hand is used. A gentle even pressure should be maintained in the direction of the venous flow.



FIG. 62.

EXAMPLE (forearm).—The operator should hold the patient's right hand in her left, and with a firm movement the whole of the palmar surface of the right

hand should stroke the forearm upwards and outwards to the elbow on the upper surface. The hand is then

gently removed, and the under surface, from the wrist upwards, is similarly treated; in this way the whole of the forearm receives treatment.

The leg is treated in practically the same way (see Fig. 62).

EFFECTS OF EFFLEURAGE.—Effleurage quickens circulation, soothes the cutaneous nerves, and increases the activity of the skin.



FIG. 63.

Kneading or Petrisage consists of deep

movements, acting directly on the muscles, by which the tissues are rolled, squeezed, and kneaded. It can either be performed by using both hands together, alternately pressing and squeezing the tissues against the bone (Fig. 63), or with one hand, which grasps the deeper tissues and lifts them from the bone.



FIG. 64.

EFFECTS.—Promotes nutrition and development of muscle. Breaks down adhesions, relieves œdema, and prevents atrophy.

Tapotement.—The commonest varieties of this method are: 1. Hacking. 2. Clapping. 3. Beating.

1. *Hacking.*—In this method of percussion the hand is very slightly flexed, the little finger being separated from the others. In this position the ulnar borders of the hands are alternately brought down lightly and quickly on the parts to be treated (Fig. 64).

2. *Clapping*.—This method is used principally on the back, chest, thighs, and buttocks. It is performed with the palmar surface of the hand made slightly concave.



FIG. 65.

The hands are used alternately, rhythmically, and evenly.

3. *Beating or Pounding*.—This is particularly applicable to the buttocks. The fists are almost closed, and the ulnar borders brought alternately and sharply into contact with the muscles to be treated (Fig. 65).

EFFECT OF TAPOTEMENT.—Stimulation.

Frictions.—These are carried out with the cushions of the fingers or the thumbs.

1. The thumb or fingers should describe small circles over the part to be massaged without removal from the skin (Fig. 66).

2. For colon friction, the fingers of the left hand are placed upon those of the right hand, so steadying and accentuating the action.

EFFECTS. — Increases absorption and stimulates local circulation.

Vibrations. — These movements consist chiefly of:

1. Light finger vibration with the tips of the fingers along the course of a nerve. One finger or the thumb alone can be used.

2. With the palm of the hand a vigorous vibration can be given to the stomach, liver, or intestines, or a gentle vibration to the heart.



FIG. 66.

3. Shaking or pulling with vibrations. The limb is extended, and firmly grasped by one or both hands, and whilst thus fully extended, the entire limb is very firmly and quickly vibrated by small shaking movements.

N.B.—The first two methods should be employed over a thin garment.

EFFECTS.—Vibrations stimulate the nervous system, and cause muscular contractions.

Joint Movements.—These are divided into (1) passive, (2) active.

1. **Passive Movements** are carried out by the operator on the patient.

2. **Active Movements** are subdivided into :

(a) Free movements, *i.e.* carried out by the patient.

(b) Assistive: patient and operator work together.

(c) Resistive: these may be eccentric or concentric.

Eccentric, carried out by the operator, patient resisting.

Concentric, carried out by the patient, operator resisting.

In opposing resistance, care should be taken to make the pressure even, and corresponding to the strength of the patient. Finally, the operator should complete her work by moving the part a degree further than the patient alone is capable of doing.

EFFECTS.—Passive movements improve the circulation of the blood in the joint and those muscles which have been worked; they also prevent and break down adhesions. Active movements cause an increased flow of blood and lymph through the joint and muscles. Resistive exercises give strength and tone to the muscles.

Before commencing special treatment it would be as well to note a few simple rules, which should always be observed.

1. The temperature of the room must be noted. It should not be below 60° nor above 70° Fahrenheit. The room is, of course, well ventilated, but draughts are to be avoided. The patient is always made absolutely comfortable. The body should be entirely covered, with the exception of the part exposed for treatment. The operator must place herself in the position in which she can most easily carry out the desired movements.

2. The patient must be taught to breathe properly, and is always kept under observation with this end in view.

3. The muscles should be relaxed. This is most important in abdominal massage.

4. The movements must be given evenly, commencing gently, and increasing in strength day by day.

5. Unless by doctor's orders, for inunction, a lubricant should not be used, as its application prevents deep work. Powder is also to be avoided, as it clogs the pores of the skin. For a beginner only it is sometimes permissible to use one or the other. If the skin is very dry from any cause, such as the recent application of plaster, or of splints, it is better to use a little white vaseline or olive oil before treatment, to prevent the particles of skin from flying about.

6. The patient should be carefully observed. If the temperature of the body be above 99° or at most 99.4° , or if a joint is hot and inflamed, it is wiser to suspend treatment until further advice has been obtained from the medical man in charge of the case.

7. Cases must never be discussed with a patient,

3. Double kneading.
 4. Hacking over the calf muscles.
 5. Effleurage.
- Knee* . . .
1. Friction round the patella.
 2. Kneading with the palm of the hand round the patella, the fingers remaining stationary under the knee.
 3. Movements of patella from side to side and upwards and downwards.
- Thigh* . .
1. Effleurage.
 2. Deep frictions.
 3. Kneading and rolling of muscles.
 4. Hacking and clapping.
 5. Effleurage.
- Hips* . . .
1. Strong effleurage.
 2. Deep kneading.
 3. Repeat 1.

(*N.B.*—If preferred the whole of the limb may be treated, instead of taking first lower and then upper parts; instead of stopping at the knee, the movements are continued to the hip. Knees and hips are then treated afterwards.)

EXERCISES

- Toes* . . . Roll each toe six times to the right and six times to the left. Passive: bend and stretch. Active: plantar and dorsal flexion of all the toes together. Follow by active, concentric movements.
- Foot* . . .
1. Foot rolling—passive.
 2. Bend and stretch, evert and invert.

Follow by active, concentric movements.

- Leg* . . . 1. Leg rolling—passive.
2. Bending and stretching, adduction and abduction. Follow by active, concentric movements.

The Upper Limb is treated in practically the same way, exercises being given to the fingers, hand, forearm, and arm.

Abdomen . Support the patient's back and head with pillows, flex the knees, and place a pillow beneath the thighs in such a way that complete relaxation of the abdominal muscles is obtained. Carefully direct the patient's breathing.

1. Deep stroking. Place hands under waist and stroke firmly from back to front.
2. Knead the whole abdomen in the direction of the ascending, transverse, and descending colon.
3. Vibrations over the solar plexus. Deep breathing meantime.
4. Double kneading, the descending colon with the right hand, and the transverse colon with the left.
5. Knead, vibrate, and stroke over the gall bladder for the liver.
6. Vibrations for the stomach.
7. Deep finger frictions (two hands) along the colon.
8. Repeat 1.

- Chest and Neck*
1. Massage, *i.e.* place the palms of both hands upon the chest, fingers pointing towards the shoulders. Turn the hands outwards and upwards, so that their positions are almost reversed (Fig. 67).
 2. Deep frictions to the muscles on the chest.
 3. Hacking and clapping.

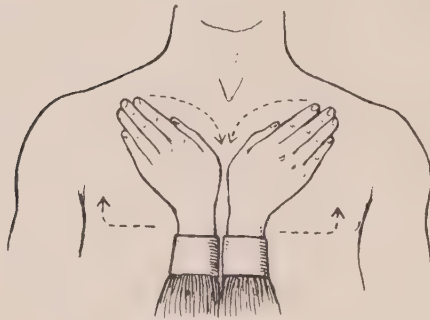


FIG. 67.

4. Effleurage.
 5. Kneading to neck and chest muscles.
 6. Effleurage to the neck.
 7. Repeat 1.
 8. Breathing exercise.
- Back* . . . The patient should be made comfortable in the prone position.
1. Light effleurage with two hands from the sacrum up towards the axillæ.
 2. Kneading of neck, shoulder, and back muscles.
 3. Hacking and clapping.
 4. Effleurage.
 5. Kneading of the glutei muscles.
 6. Repeat 1.

EXERCISE.—The operator puts firm pressure on the patient's legs, the patient clasps hands over the glutei muscles and extends the back and shoulders as far as possible.

In general massage the operator should use discretion, and vary the above treatment to the needs of the individual patient.

Milk or soup should be given after treatment.

Unless the patient suffers from amenorrhœa, massage to abdomen and loins, and leg exercises should be omitted during menstruation. Should the patient suffer from menorrhagia, it is also wiser to follow this rule for a few days *before*, as well as during, menstruation.

BREATHING EXERCISES

It would be beyond the scope of this book to attempt to classify or to explain the Swedish system of remedial exercises, of which breathing exercises form an important part. The latter alone will be considered.

Breathing exercises act in the following manner:

1. They increase the intake of oxygen and the output of CO_2 , thus furthering general metabolism.
2. They aid the systemic circulation by increasing the negative pressure in the thorax, which follows each deep respiration.
3. They help the pulmonary circulation and the nutrition of the lung tissue.
4. They prevent the formation of adhesions between the chest wall and the lungs, and
5. They increase the mobility of the thorax as a

whole, and of the costal articulations, and so increase expiration and expectoration.

Breathing exercises are, therefore, of supreme importance in the treatment of diseases of the circulatory and respiratory tract as well as the treatment of general disturbances of nutrition.

They are of special benefit in the treatment of emphysema, bronchitis, and asthma, where the patient is suffering from increased pressure in the pulmonary circulation.

In the after treatment of pleurisy, breathing exercises are also highly important, as in this case the lung becomes slightly collapsed after an attack, and it is practically useless until re-educated by a carefully thought out and very gradual system of exercises.

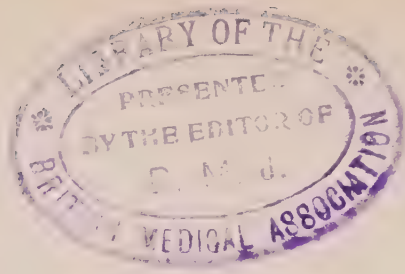
In the after treatment of **tonsils and adenoids**, breathing exercises are too often neglected. It is best to begin instruction in breathing before the removal of the growths, and the lessons should be continued for some time after the operation. These lymphoid growths cause a great difficulty in breathing, and thus have a very bad mechanical effect on the chest, resulting in retraction of the lower ribs, and marked thoracic deformity. The object of breathing exercises in these cases is twofold; first, to correct the existing deformity and to assist in the proper development of the chest; and secondly, to teach the patient to use the nasal passages which have been blocked for so long.

It is important when beginning the exercise treatment, just after the operation, to teach the patient to breathe in through the nose and out through the mouth, and not allow him to breathe out through the nose, otherwise he is apt to get patches of emphysema, owing to his expiration being incomplete.

Another plan is to make the patient exercise daily in the following manner: he closes one nostril with his finger, and breathes in through the open nostril, and out through the mouth five to ten times. He then does the same with the other nostril.

There are a great number of exercises which develop the chest, and the following will serve as examples:

The child is told to stand erect and place the palms of his hands together, with the arms fully extended in front of him; he then swings back his hands and arms, keeping them straight, and at the same time he takes a deep breath. Ten or twelve times will suffice the first day, and the number is increased daily. Having performed this exercise he is told to place one hand on the hip of the same side, with the fingers forward, and to lean over to that side, whilst he simultaneously takes a deep breath. After performing this ten or twelve times he should change the hand, and repeat the exercise for the other side.



CHAPTER XVII

INVALID COOKERY

WHILST a nurse in private work will not as a rule be called upon to undertake the actual cooking of the patient's food, it is always an advantage for her to have some knowledge of this art, so that she can direct the preparation of variants of the particular diet ordered. With this knowledge she will then not only be able to order the menu for the patient, but will also be capable of suggesting or supervising the details of the cooking, and of judging whether the preparation is well prepared and suitable for an invalid's digestion.

Below will be found some of the most commonly used palatable dishes for the sick room. The list is by no means complete, and will, without doubt, differ in some details as to method from those in use at any particular house. The nurse will be well advised to add to the list any extra recipes which, in the course of her experience, she finds pleasing and useful.

Measuring.—It is necessary to weigh and measure each ingredient before cooking. When scales are not at hand, or are out of order, the following list may be used as a convenient and sufficiently accurate guide:

Three pennies	=	one ounce.
Five halfpennies	=	one ounce.
Six lumps of sugar	=	one ounce.

One tablespoonful flour, &c.	=	one ounce.
Four leaves French leaf gelatine	=	one ounce.
Two tablespoonfuls liquid	=	one ounce.
One teacup	=	one gill.
One breakfast cup	=	half a pint.

Barley Water.—Put two tablespoonfuls of pearl barley, well washed, into one pint of cold water, bring to the boil, drain off, then add one pint of cold water to the barley and let it simmer for two or three hours. Strain off. If wanted as a drink and not merely to dilute milk, lemon and sugar may be added to flavour.

Alternative Method, using Barley Flour.—One small dessert spoonful of barley flour; mix to the consistency of a smooth paste with cold water, add one pint of boiling water, reboil for twenty minutes.

Imperial Drink.—The juice of two lemons, the rind of one, three ounces of white sugar, and a teaspoonful of cream of tartar, are mixed in a jug, and one pint of boiling water is poured over them. Mixed with one-third of soda water or barley water makes a very refreshing drink. It is suitable for diabetic patients if it is sweetened with saccharine instead of sugar.

Albumen Water.—Take the whites of two eggs, remove the specks, and beat well. Add them gradually, mixing thoroughly, to a pint of cold water, which has been previously boiled. For a baby, one egg to the same amount of water is sufficient.

Egg Flip.—Break a fresh egg, remove the speck, beat up well with two ounces of milk, add two ounces of hot water with half an ounce of brandy (if desired),

and sugar to taste. Milk may be used instead of water.

Toast Water.—Take a slice of bread, well toasted on both sides until dried through, brown, but not burnt. Put it into a basin, and pour over one pint of boiling water. Let it stand till cool. Strain.

Milk Tea.—Pour boiling milk instead of water over the tea. Let it stand for a few minutes.

Rice Water.—Wash half an ounce of rice, put into saucepan with one pint of cold water, bring to boil for half an hour, strain and serve cold. May be flavoured with sugar, or cinnamon may be cooked with it.

Lemonade.—Ingredients: two lemons, two or three lumps of sugar, one pint of boiling water.

Wipe the lemons with a damp cloth, and peel the rind of one as thinly as possible so as to cut through the oil globules. Cut in two and squeeze out the juice. Strain the juice into a jug, add to it the lemon rind and sugar, pour on the boiling water, cover and allow to stand till cool. Strain.

Linseed Tea.—Ingredients: one ounce of whole linseed, two or three lumps of sugar, the rind and juice of half a lemon, one pint of boiling water.

Put the linseed, sugar, and lemon rind into a saucepan, add the boiling water and simmer for twenty minutes, then add the lemon juice and strain. If used for a bad cold, a small piece of liquorice or sugar-candy may with advantage be boiled with it.

Beef Tea.—Use one pound of meat to one pint of water. Scrape the meat, place it in a jar with cold

water and salt, cover over with a greased paper, allow it to stand for half an hour, place the jar in a saucepan of cold water reaching half-way up the jar, bring slowly to the boil and steam three to four hours; or cook in a slow oven. Strain and remove fat on the surface by passing kitchen paper over it.

Mutton or Veal Tea can be made in the same way.

Quickly Made Beef Tea.—Scrape the meat and place in water. Allow it to stand if possible; place in saucepan and stir well with two forks back to back until it boils; draw to one side the saucepan, and let it simmer for five minutes. Strain, add salt, remove fat by passing kitchen paper over it.

Peptonised Beef Tea.—Half a pound of finely shredded beef, half a pint of water, and twenty grains of bicarbonate of soda are heated slowly in a stewpan to 140° F., and kept at this temperature for half an hour. When it has cooled down, add one teaspoonful of Liquor Pancreaticus, cover it, and allow it to stand for one hour in a cool place. Strain, bring to the boil and season.

Beef Essence is made in precisely the same manner as beef tea, with the exception that two ounces of water are used instead of a pint. This is a very concentrated form of food, and should only be given in teaspoonful doses.

Raw Meat Juice or Raw Beef Tea.—Use two ounces of fresh killed meat to one gill of cold water. Scrape the meat, add the water, and allow it to stand for two hours. Strain and serve in a red glass.

Beef Tea and Eggs.—Beat the yolk of an egg in a

teacup, slightly season with salt. Pour over it heated but not boiling beef tea, and serve with toast.

Milk Jelly.—One pint of boiling milk to one-third of a packet of Swinbourne's isinglass. Pour the milk over the isinglass. Stir well until dissolved; flavour with sugar, lemon, or vanilla. Put on ice to set. Boiling beef tea can be added instead of milk.

Whey.—To one pint of milk (temperature 98°) add one teaspoonful of rennet. Stand aside until the curd separates; strain through muslin. Whey may be boiled.

Arrowroot.—One small dessert spoonful of arrowroot mixed to a smooth paste with cold water; add half a pint of boiling milk, reboil for five minutes, stirring all the time. Flavour to taste with a teaspoonful of sugar or with ratafia or lemon essence, or with a little sherry.

Benger's Food.—One tablespoonful of Benger's is mixed to a smooth paste with cold water or milk. To this add one pint of boiling milk, stand aside for fifteen minutes, reboil, stirring all the time, add sugar to taste.

Peptonised Milk.—There are many peptonising powders, tablets, and liquids on the market, and full directions are supplied with each. The following will serve as an example: Zymine peptonising tubes. *Warm Process:* Put the powder out of one of the glass tubes, with a quarter of a pint of cold water, into a clean quart bottle. Shake, then add a pint of fresh milk and shake the mixture together. Place the bottle in warm water (of a temperature which the hand can endure without discomfort) for ten minutes. Pour into a saucepan, and heat quickly to boiling. *Cold Process:*

Mix the peptonising powder with the water and milk in a bottle as directed above, then place the bottle on ice. When the milk is required for use, pour out the desired quantity, and always replace the bottle on ice.

Sour Milk.—This consists of milk containing the cultivation of the lactic acid bacillus. One or two pints are administered daily. It is prepared in the following manner: A pint of fresh milk, with or without cream, is boiled and allowed to cool to 104° Fahr., then a liquid culture or tablet of lactic acid bacilli is added. The quantity varies with the different brands used. The mixture is placed in a jar and kept at a uniform temperature of about 114° for eight to ten hours. When it is ready for use, it may be eaten with sugar and cream, or with sugar and a little powdered cinnamon or ginger. It is usually taken twelve to twenty-four hours after souring has commenced.

Gruel.—One ounce of fine oatmeal, half a pint of cold water. Mix the oatmeal with the water, cover it over, and allow to stand for one hour, then stir, and strain into a lined saucepan and stir over the fire until boiling. Allow to simmer for fifteen minutes. It may be sweetened or salted to taste.

Milk gruel, which is a very appetising substitute, may be made in exactly the same way, employing milk instead of water.

A nutritious gruel can also be made with patent groats.

Peptonised Gruel.—Half a pint of thick gruel is added to a half pint of milk and twenty grains of bicarbonate of soda, with a dessert spoonful of Liquor Pancreaticus, are well stirred into it. Keep at this

temperature for thirty minutes, and then boil for a few minutes. Sweeten and flavour to taste.

White Wine Whey.—To one pint of boiling milk add four ounces of sherry, stand aside for two hours for the curds to separate, strain through muslin, and add sugar if required. This makes a very soothing and easily digested drink.

Junket.—Ingredients: one pint of milk, one teaspoonful of rennet; flavour with sugar, lemon, or vanilla.

Heat the milk to a temperature of 95°, add flavouring and rennet. Stand aside to set. Serve with cream if desired.

Blanc Mange.—Ingredients: one ounce of cornflour, one pint of milk, one ounce of sugar, flavouring.

Mix the cornflour with a little cold milk to a smooth paste, bring the rest of the milk to the boil, and pour over the paste. Reboil, stirring all the time, add flavouring. Pour into a damp mould. Ground rice, arrowroot, &c., can be used instead of cornflour.

Rice Pudding.—Two teaspoonfuls of best Patna rice, two teaspoonfuls of Demerara sugar, one pint of milk. Put into a pie-dish, stir well, and cook in the oven for three hours. It is economical to use the best rice; less is needed, and the result is better.

Custard Pudding.—Ingredients: two eggs, a few drops of vanilla or lemon essence, half an ounce of sugar, half a pint of milk.

Beat up the eggs lightly, add the milk, and strain into a greased pie-dish. Add the sugar and flavouring. Bake in a very moderate oven.

Egg Jelly.—Ingredients: quarter of an ounce of gelatine, one egg, one lemon, half a pint of cold water, three ounces of loaf sugar.

Put the gelatine, thin lemon rind, sugar, and beaten egg into a saucepan, strain the lemon juice, make it up to half a pint with cold water, add this to the other ingredients, and stir at a very moderate heat until the gelatine is dissolved. Strain, and pour into moulds which have been previously rinsed with cold water.

Restorative Jelly.—Take a quarter of an ounce of isinglass, one ounce of loaf sugar, a quarter of a pint of port wine, the juice of one orange and one lemon, half a gill of water, the yolks of two eggs.

Dissolve the isinglass, water, and sugar into a saucepan, add the juice of orange and lemon, strain the whole over beaten yolks of eggs, add port wine, return to the saucepan, and stir until it thickens, but do not bring to the boil. Pour into damp moulds, remove scum, and put to set.

Orange or Lemon Jelly.—Take half a pint of water, the rind of three oranges or lemons, half a pint of orange or lemon juice, three ounces of loaf sugar, and one ounce of gelatine. If orange juice is used, the juice of two lemons must be added.

Leave the water, sugar, orange or lemon rind, and gelatine in a saucepan until dissolved, cover, and allow to infuse for ten minutes, then strain into a basin. Add the orange and lemon juice, also strained. Pour the jelly into a rinsed mould, and when set turn out. A wine-glassful of port wine or sherry may be added, in which case less water is used.

N.B.—Clearing spoils the flavour of orange jelly.

Wine Jelly.—One and a quarter pints of water, half an inch of cinnamon (stick), half a pint of sherry, two cloves, a quarter of a pint of lemon juice, the rind of two lemons, six ounces of loaf sugar, two ounces of Cox's gelatine, two whites and shells of eggs.

Put all the ingredients, except the wine and eggs, into a saucepan until the gelatine is dissolved. Whisk the whites and shells of the eggs together and add. Stir over the fire until it boils, draw to the side, allow to stand five minutes. Strain through scalded flannel cloth, add the wine. Pour into damp moulds.

Beef Jelly.—Prepare beef tea in the manner described above, adding one ounce of isinglass to each pint. When this mixture cools it will form a jelly.

Peptonised Beef Jelly.—Soften half an ounce of sheet gelatine in a little cold water, and add to the boiling peptonised beef tea, as made on page 301. Stir until dissolved, and strain into a mould which has been previously rinsed out with cold water.

Chicken Jelly.—Required : one chicken, one bay leaf, a pinch of salt, cold water, a few parsley stalks.

Remove the breast fillets from the chicken, and reserve for steaming, &c. Cut the chicken into joints and remove all flesh from the bones. Wash the neck and gizzard well, for these may also be used for the jelly. Put the prepared chicken into a saucepan, cover with cold water, and add a pinch of salt. Bring to the boil and skim well, add the bay leaf and parsley stalks. Simmer gently for three or four hours. Strain through a hair sieve, and when cold remove all the fat from the top. This can be served cold in its jellied state or heated as required.

Mutton Broth.—Ingredients: one pound of neck or knuckle of mutton, two pints of cold water, one dessertspoonful of whole rice or barley, one teaspoonful of chopped parsley, one teaspoonful of salt.

Wipe the meat with a damp cloth, cut it into small pieces, removing skin and fat. Remove the marrow from the bone, and put the bone with the meat, water, and salt into a clean lined saucepan. Bring it slowly to the boil, and remove scum carefully. Simmer for three to four hours, skimming occasionally, then strain it through a fine strainer. When cold remove all the fat from the top, return the soup to a lined saucepan, and add to it rice or barley blanched. Cook this for about twenty minutes and then add parsley. Other thickening, such as arrowroot or crushed tapioca, may be used instead of rice.

Chicken or Veal Broth.—Prepare in the same way as mutton broth, using chicken or veal instead of mutton.

Scrambled Eggs.—Break four eggs, remove the specks, and slightly beat them; season with salt and pepper. Add two tablespoonfuls of cream or milk. Pour into a saucepan in which one ounce of butter has been melted. Stir over the fire until the eggs begin to set. Pile on to buttered toast. Sprinkle over with chopped parsley.

Savoury Omelet.—Ingredients: four eggs, one tablespoonful of cream or milk, one and a half ounces of butter, salt and pepper.

Break the eggs, remove the specks, and beat long enough to mix the yolks and whites well together; add cream and seasoning. Melt the butter in the saucepan, pour in the mixture, stir with a fork until the eggs begin to set, then fold the sides together towards the

middle in an oblong form. Finely chopped parsley, shallot, and herbs, if required, should be added before frying.

For **sweet omelet** add sugar instead of salt and pepper, and serve with jam if so desired.

Beef Tea Custard.—Beat the yolks and whites of two eggs together. Into this pour a quarter of a pint of beef tea. Place the mixture in a well-buttered cup, cover with greased paper, and stand in a stew-pan containing boiling water. Allow to steam for twenty minutes, and turn out and cut into squares.

Red Marrow.—The interior of several ribs is scraped out, well pounded in a mortar, and strained through muslin. It is served in a red glass.

Chicken Panada.—Take the best part (breast and wings) of a cooked chicken and pound it in a mortar, and rub through a wire sieve. Put the mixture into a lined saucepan, add one or two tablespoonfuls of cream or a little white sauce and a pinch of salt, and heat through.

This may be served hot on a piece of toast or even cold.

Chicken Cream.—Four ounces of breast of chicken (three ounces when rubbed through sieve), half an ounce of butter, half an ounce of bread crumbs, half a gill of milk flavoured with a blade of mace, salt, pepper, half a gill of whipped cream, stiffly whipped whites of two eggs, half a pint of rich white sauce.

Put the chicken juice, bread crumbs, and butter into a basin, add milk, beat until smooth, add cream and whites of eggs, pour into a buttered mould, steam gently

half an hour. Turn into a hot dish, and pour sauce over.

Mutton or Beef Cream is prepared in a similar manner.

Stewed Oysters.—A dozen oysters are blanched in their own liquor and strained. Milk is added to the liquor to make it up to half a pint, and this, with a piece of mace, is poured into a stewpan in which about an ounce of butter has been melted. Boil for two or three minutes. Beat about a quarter of a gill of cream and the yolk of one egg together, and strain them into the sauce. Stir gently by the fire for three or four minutes, but do not allow it to boil. The oysters are bearded, cut into quarters, and stirred into the sauce. Remove the mace, add seasoning and a teaspoonful of lemon juice.

Sole à la Crème.—Boil fillets of fish for about ten minutes in half a pint of milk with a piece of carrot, blade of mace, lemon rind, sprig of parsley, juice of onion, two cloves, pepper and salt. Take the fish out, put in a dish, strain the milk, and make a sauce with half a pint of the milk, one ounce of butter, two teaspoonfuls of flour, half a gill of cream, and pour over the fish.

Steamed Fish : Filleted Plaice or Sole.—Well wash the fillets, and dry on a clean towel, fold in two or roll, head to tail, skinned side inside, place between two buttered plates, and stand on the top of a saucepan of boiling water, and steam for twenty minutes. Serve on a hot dish. Pour over it the liquid that is on the plate formed by the juice from the fish, and garnish with lemon and parsley. This is the lightest and simplest mode of cooking fish for an invalid.

If fried fish is allowed, the fillets are brushed over with eggs, rolled in bread crumbs, and fried in boiling fat until a nice brown. This is a dainty and appetising way of serving fish.

Stewed Tripe.—Half a pound of well boiled tripe, one gill of milk, half an ounce of butter, one boiled onion, a quarter of an ounce of flour, sippets of toast, one gill of tripe liquor, pepper and salt, and a little lemon juice.

Make a white sauce with the flour, milk and tripe liquor, cut the tripe into neat pieces, and chop the onion. Add those to the sauce, season well, and simmer very gently for about twenty minutes. Serve on hot dish with sippets of toast round. Two teaspoonfuls of cream added to the sauce makes it more nourishing.

Calves' Feet Stewed.—They must stew very gently for several hours, as the meat should be very tender. Take the meat from the bones, and put both in saucepan, boiling until the stock is much reduced in quantity. Strain off, thicken with an egg well beaten up, add chopped parsley, a leaf of tarragon chopped with it, pepper and salt, half a glass of white wine (not sweet), or lemon juice.

Calves' Feet are also pleasing to the taste when plain boiled with parsley or butter.

Steamed Chop or Steak.—Put the meat on a plate over a saucepan of boiling water, cover, and steam for twenty to thirty minutes.

Stewed Sweetbread.—One sweetbread, one dessert-spoonful of arrowroot, half a pint of white stock or milk, pepper and salt, one tablespoonful of cream, a few drops of lemon juice.

Soak the sweetbread in cold water and a little salt for one hour, then blanch it, by bringing it to the boil and letting it boil for five minutes. Lift the sweetbread into a bowl of cold water, and with the fingers pull away any fat or gristle. Tie it into a piece of muslin, place in a stewpan, and cover with hot stock or milk. Simmer gently for one hour. When the sweetbread feels tender, lift it on to a square of toast, and keep it hot. Mix the arrowroot to a smooth paste with a little cold stock, strain it into the stock in the saucepan, bring it to the boil, and cook about five minutes. Add cream, season, and pour sauce over the sweetbread.

Stewed Pigeon.—One pigeon trussed for roasting, three gills of hot brown stock, half an ounce of butter, one teaspoonful of arrowroot, pepper and salt.

Make the butter smoking hot and brown the pigeon in it, then pour over it the hot stock. Cook the pigeon gently till tender, one to one and a half hours. Mix the arrowroot to a smooth paste with cold water, add it to the stock, stir till boiling, and cook thoroughly. Season well, and strain the sauce over the pigeon.

APPENDIX

EMERGENCIES

Most of the common emergencies likely to arise are considered under their appropriate headings in the preceding chapters, but there are a few which are difficult to place in any particular part of the book, and so are grouped together below.

Sunstroke.—This condition is practically unknown in England, but **Heat Stroke** is not infrequent.

Heat Stroke results from exposure to sun, and the patient should be put to bed with the blinds drawn. Ice or a handkerchief soaked in eau-de-Cologne should be applied to the head, which is kept raised. Subsequently the patient should avoid exposure to the sun.

Suffocation by Gas or Smoke.—The patient must be carried into the fresh air, the clothing round the neck loosened, and artificial respiration, which is described below, employed.

Hanging or Strangulation.—Patients should at once be cut down, and the constricting article cut and removed from the neck. Fresh air must be freely admitted, and cold water may be dashed in the face. If the breathing has ceased, then artificial respiration (see below) should be at once instituted.

Drowning.—First, see that the mouth is freed from all obstructions, such as weeds; next place the patient face downwards for half to one minute with his forehead resting on your arm. Some fluid will then run out, and the tongue will fall forward. The patient is then turned on to his

back, his tongue is kept forward, and artificial respiration (see below) is performed. As soon as the patient begins to breathe naturally, he must be wrapped in hot blankets with hot bottles in close proximity. The limbs should be well rubbed in an upward direction.

Choking.—The doctor should be sent for immediately. Slapping the back is generally valueless. Whilst awaiting the arrival of the doctor the nurse should pull the patient's head back and insert a wedge between the teeth. The wedge may consist of a cork, a piece of wood, or a spoon wrapped up in a napkin, handkerchief, or apron. This having been done, the nurse should push her right forefinger into the mouth, a little to one side, and try to remove the obstacle by hooking it out. Even if this fails, this action will press down the back of the tongue and induce vomiting, and possibly the ejection of the mass. Artificial respiration may be required.

Artificial Respiration can be done in various ways. The following are simple methods in common use:

Schäfer's Method.—The patient is at once laid face downwards on the ground with his arms extended above his head and his face resting sideways on his hands. The nurse must kneel on one side of him at about the level of his hips, and place her hands on his back just above his waist line with her thumbs almost meeting on the spine and her fingers grasping the lower ribs on either side. The movements consist of leaning forward slowly with stiff arms, throwing her weight over the patient's body so that the air and water is squeezed out of the lungs. She then relaxes her grasp without removing her hands, and sits back on to her heels, which causes the air to be inhaled. This should be performed about fifteen times to the minute until signs of recovery take place, after which hot bottles and blankets are applied in this and in Sylvester's method.

Sylvester's Method.—Having placed the patient flat upon his back with a pillow beneath his shoulder-blades, the nurse

kneels behind his head and, holding the patient's fore-arms just above the elbows, pulls them gradually upward until they meet above the head. After keeping them in this position for two seconds she gently pushes them down again and presses them against the side of the chest for two seconds (Fig. 68).

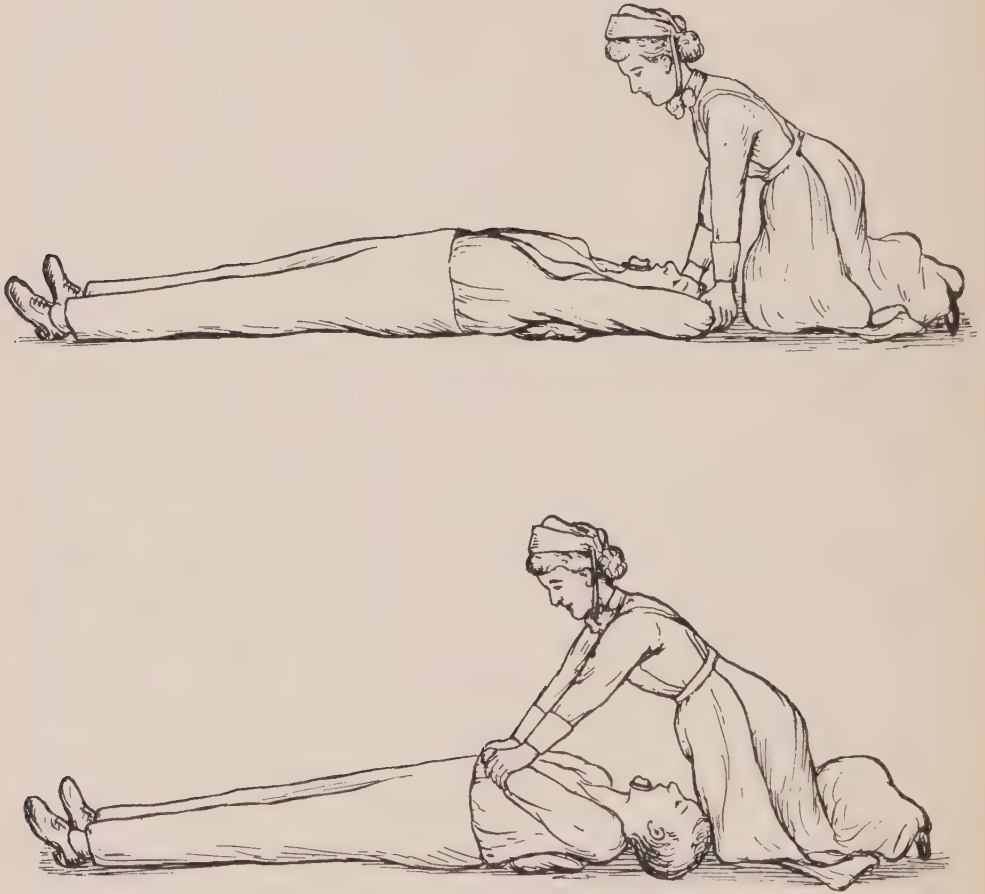


FIG. 68.

These movements should be repeated at the rate of about fifteen to the minute, and continued, if necessary, for two hours or more. As soon as the patient makes any attempt to breathe, then the nurse regulates the movements so that she is drawing up the arms during inspiration, and pressing them down during the act of expiration.

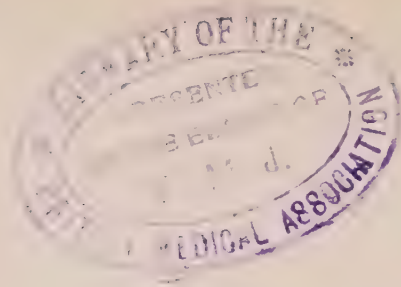
Sea Sickness.—A simple diet should be taken for a few days prior to the voyage, and the bowels kept freely open. If the voyage is a short one, the patient should lie down immediately after getting on board, preferably on his right side, with the knees drawn up. A tight abdominal belt is sometimes found to be helpful. Under the doctor's orders a draught of bromides, chloral or chloretone, may be taken prior to starting. Most of the patent remedies contain one or other of these ingredients. For a longer voyage, rest is essential and the same drugs may be used. No solid food is taken, and thirst is relieved by small pieces of ice, champagne, or ginger ale. The aforesaid drugs may be too depressing, and in some cases the doctor may utilise tonics in their place.

Shock.—This condition may be *physical* or *mental*. The former follows after injury, operations, burns, or anæsthetics, and the nursing consists in wrapping the patient in hot blankets, applying hot bottles, and administering hot coffee and perhaps saline enemata. The doctor will decide whether alcohol or strychnine is to be given.

The latter occurs after great mental emotion, and the patient should be made to lie down, use smelling salts, and perhaps take a little brandy.

Fainting.—See page 173.

Fits.—See pages 199, 209, and 210.



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